

SEPTEMBER, 1921



THE MINING CONGRESS JOURNAL

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In This Issue:

Forecast of Convention, Exposition and Standardization Conference

Review of Silver Situation—Probable Life of Pittman Act

Return of Prosperity Seen In Larger Railroad Earnings

Digest of Revenue Act of 1921

Legislation to Stimulate Use of Non-metals and Derivatives

Eighty Teams Entered in International Mine Rescue And Safety Contest

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SENATOR SAMUEL D. NICHOLSON of Colorado

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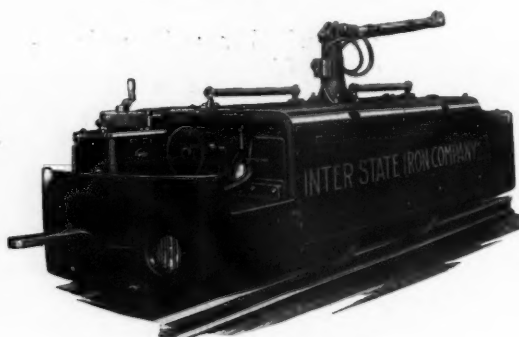
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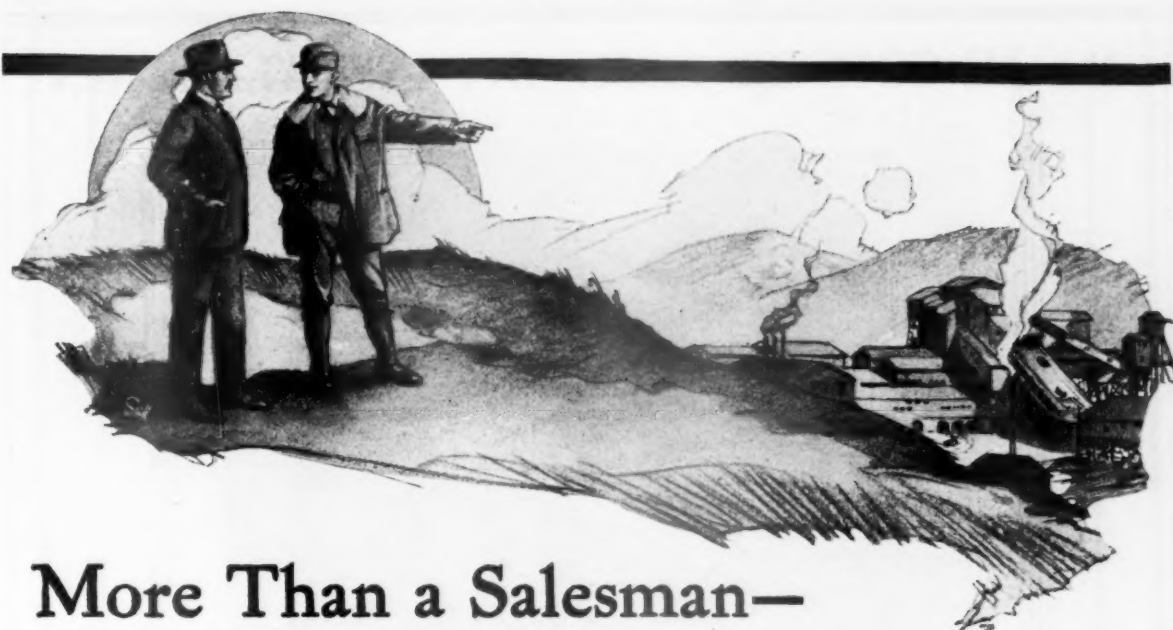
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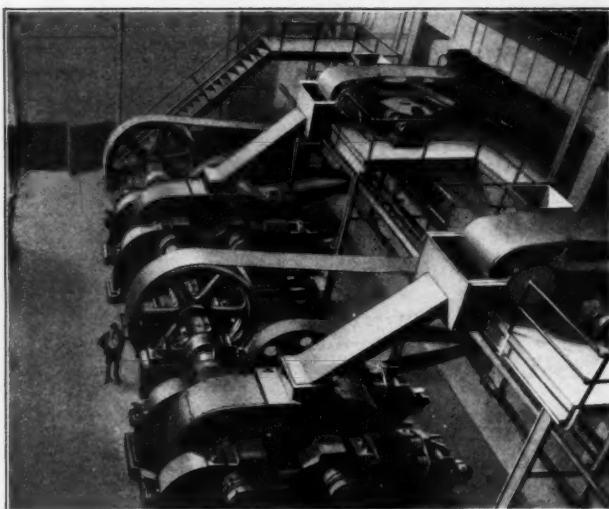
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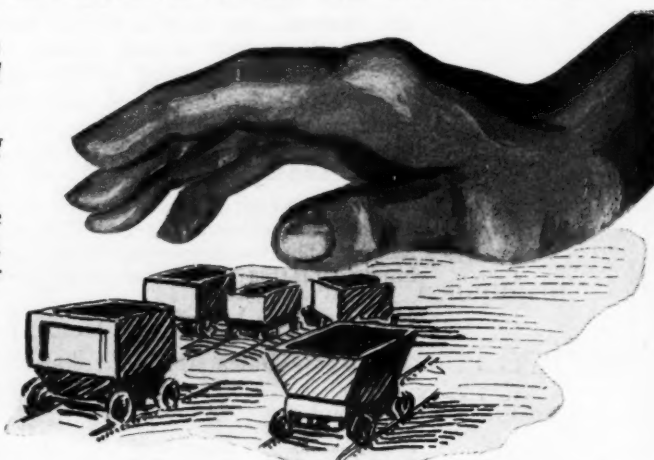
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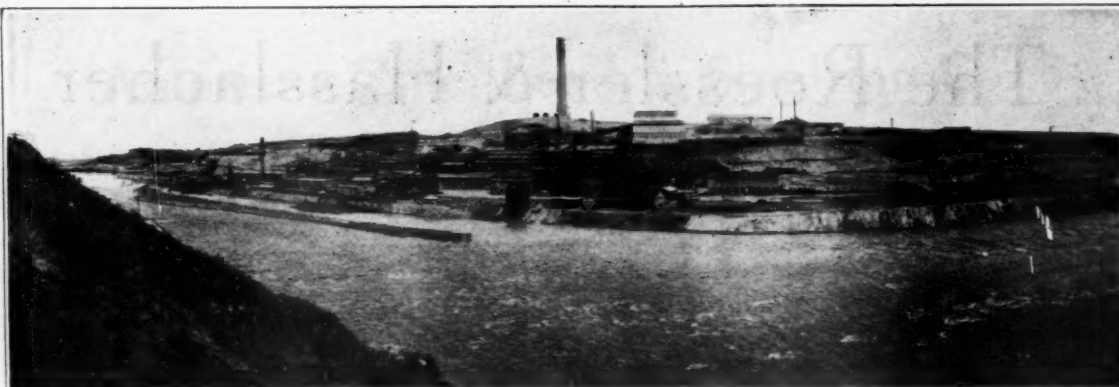


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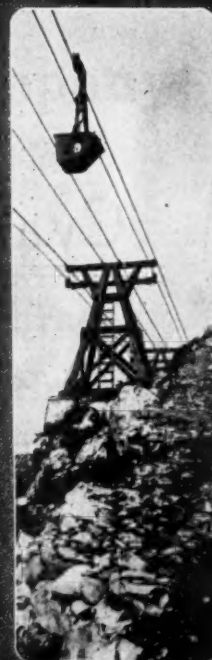
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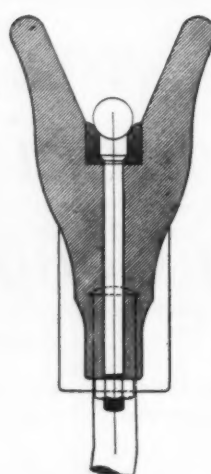
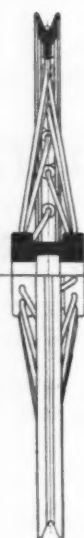
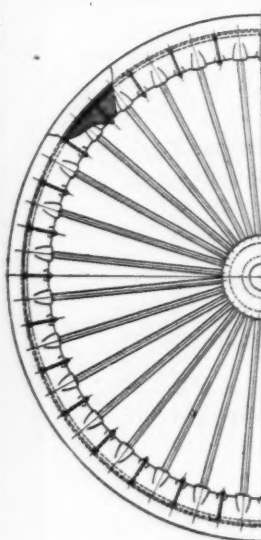
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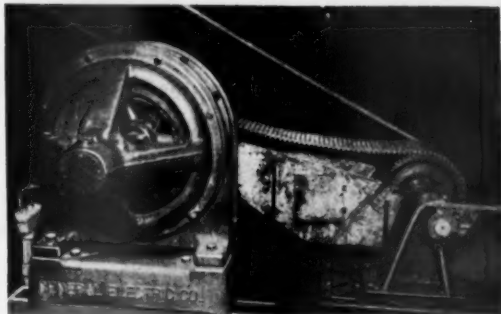
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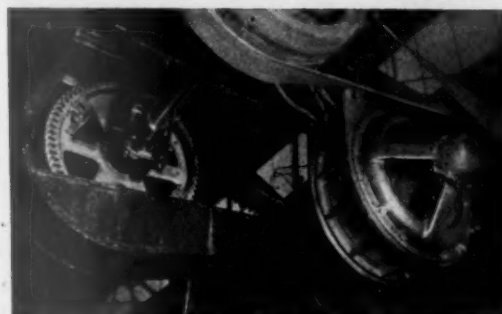
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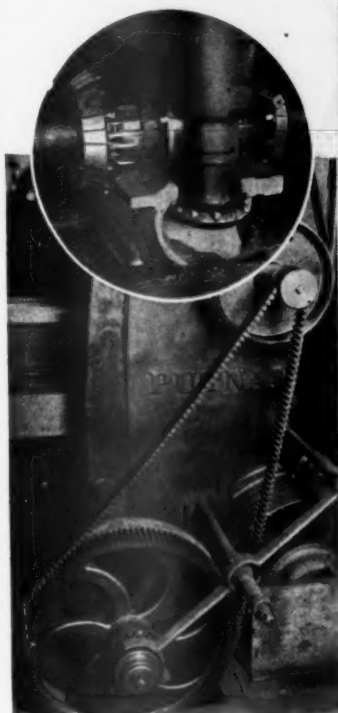
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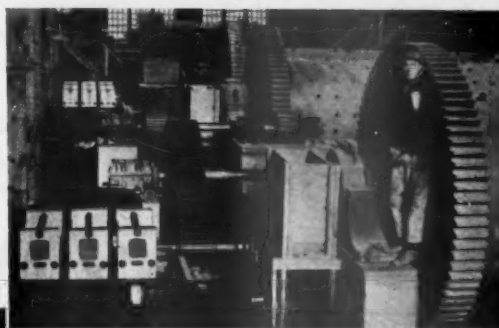
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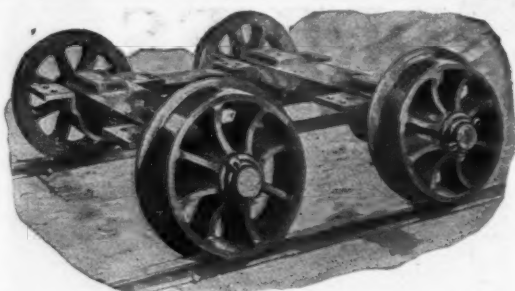


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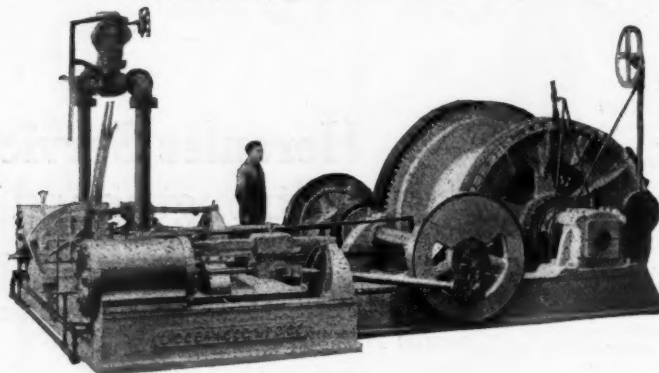
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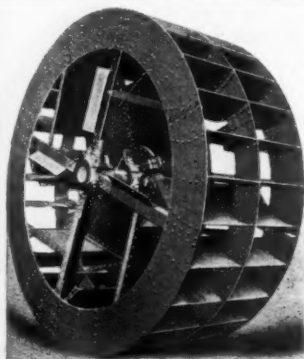
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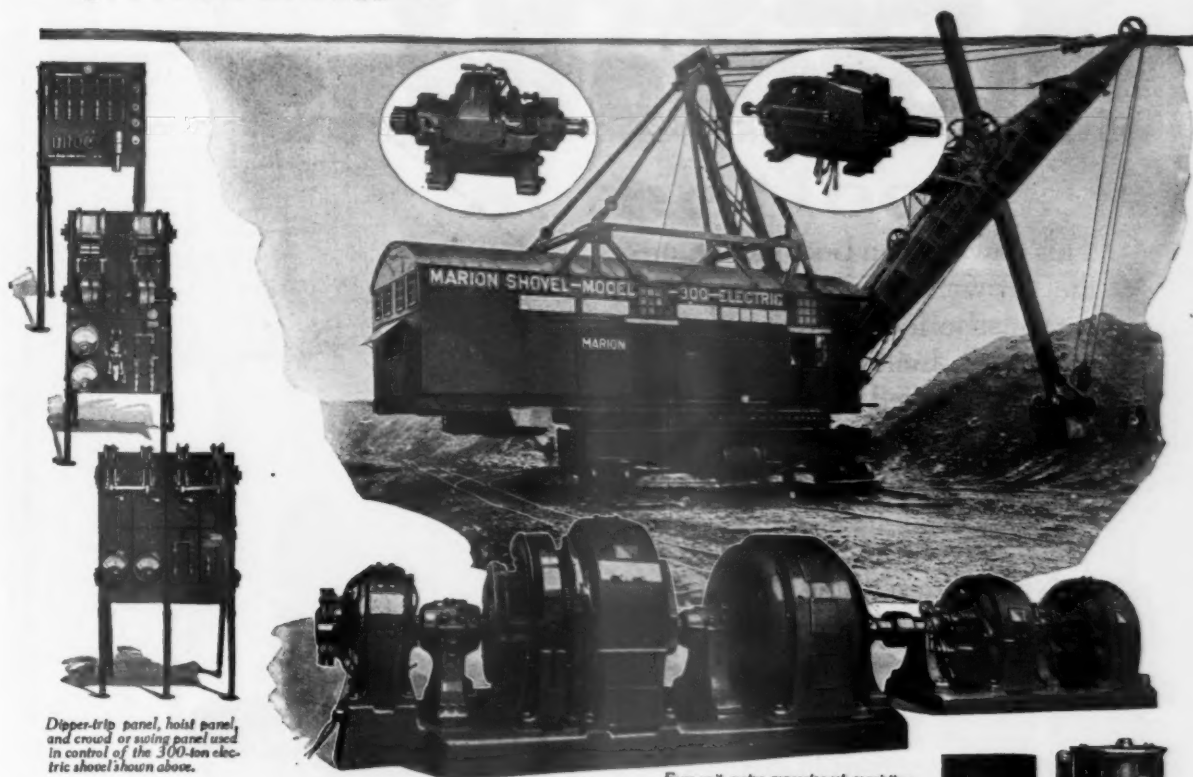
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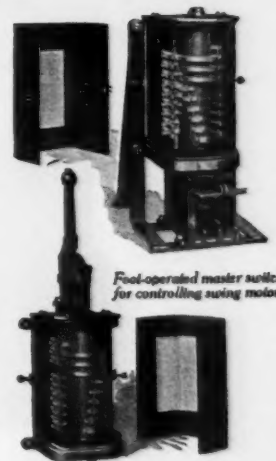
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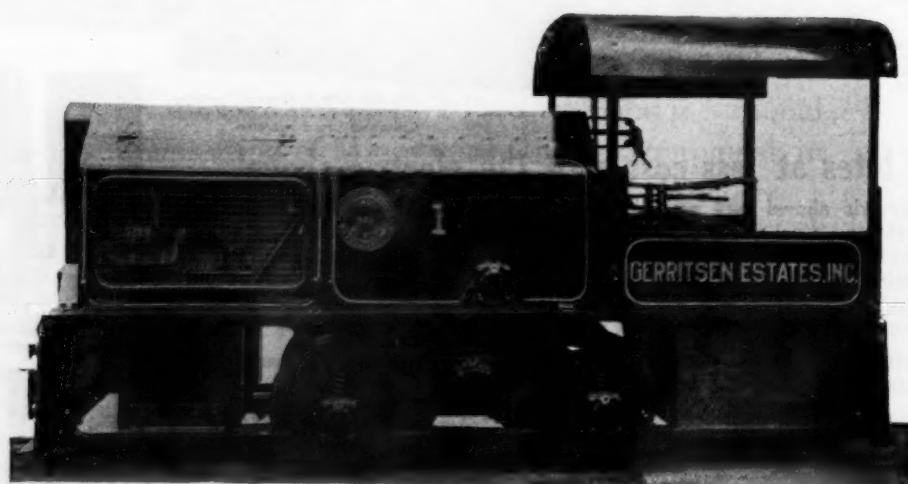
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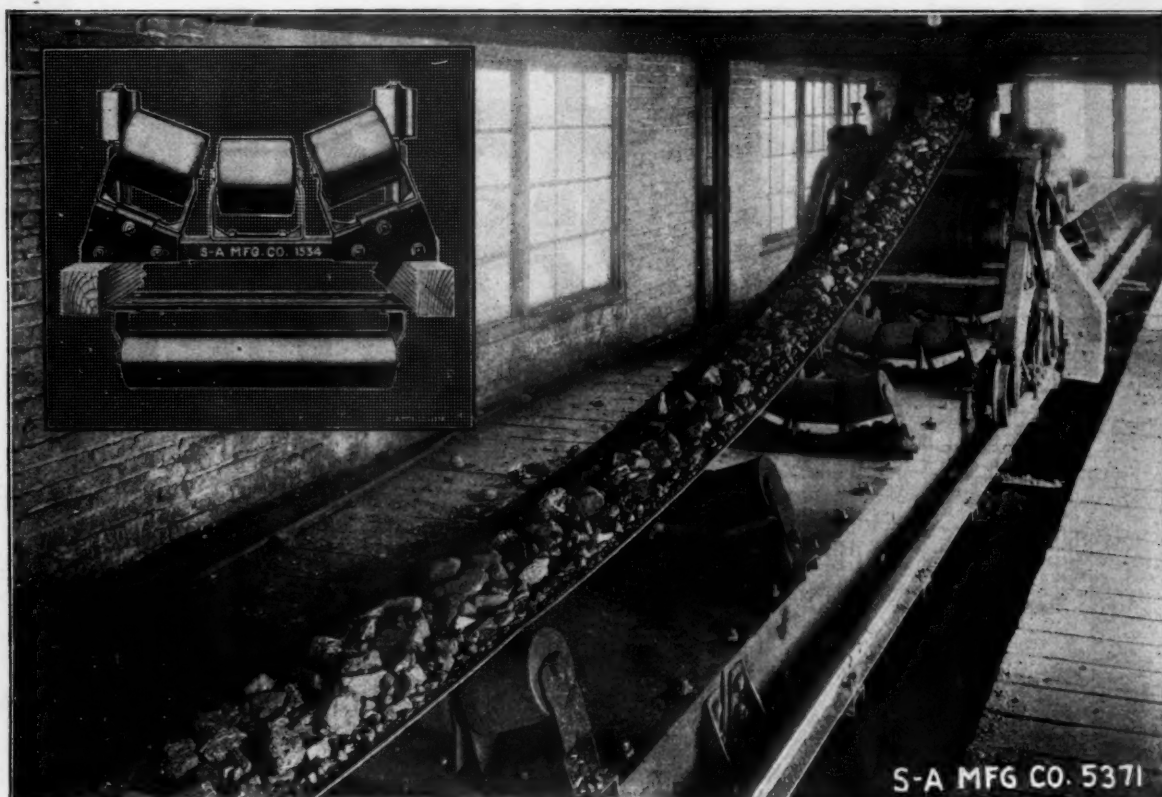
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THE ANNUAL CONVENTION OF THE MINING INDUSTRY

TWENTY-ONE THOUSAND ENTERPRISES whose output of raw materials last year added seven billion dollars to the nation's wealth will be represented at the annual convention of the American Mining Congress, which will be held in Chicago, October 17-22. Questions of importance not only to mine owners and makers of mining machinery and supplies, but to every business, every consumer in the United States, will be discussed, and among those participating in the deliberations will be some of the greatest statesmen, economists and educators, the largest shippers and the leading manufacturers of the United States.

Besides the general convention sessions, there will be held conferences where groups of delegates will concentrate upon particular problems. Included among them will be

- (1) National Standardization Conference.
- (2) National Oil Shale Conference.
- (3) Conference on Public Education and Service.

At the Standardization Conference in Denver last year the attendance was approximately five hundred. The constructive program agreed upon at that time has produced results during the intervening period. The wisdom of standardization has been demonstrated, and the interest taken therein by operators and manufacturers would seem to warrant the prediction of enlarged attendance this year. Speakers of national import will address this meeting, all acknowledged leaders in the quest for method, equipment and welfare standards.

Every man at all interested in lubrication and power—and that includes every mine owner and every manufacturer—is directly concerned in the National Oil Shale Conference. Here a great industry in the making will be discussed, and by the men who are going to make it. President Victor C. Alderson of the Colorado School of Mines will conduct this conference, which will be participated in by experts from Colorado, Utah, California and other states where shale resources abound. Undoubtedly a mighty impetus will be given the movement for converting these resources into useful commodities of commerce.

Both the Standardization and the Oil Shale conferences will be held in the Coliseum, where delegates may inspect the machinery which has been designed to aid in the solution of their problems.

Closer co-operation between the United States Government and state geological surveys and mining schools is the object of the conference on Pub-

lic Education and Service, which will be conducted by Dr. Charles H. Fulton, Director of the Missouri School of Mines. This will be the first conference of such nature held at any Mining Congress convention, and its objects are so intimately interwoven in the future of the mining industry that it will doubtlessly become a feature of the annual meetings and a permanent part of the national work.

The list of speakers representing the coal industry gives promise of a symposium of views of a calibre sufficient to make any purely coal conference notable. Such men as Thomas T. Brewster, C. E. Leshner, J. D. A. Morrow and F. C. Bradley will deliver addresses. They always have something important to say, and they know how to say it.

Senator Samuel D. Nicholson will deliver an address. Every branch of the industry will avail itself of the opportunity to learn the views of this Western statesman who believes mining is of sufficient importance to warrant the creation of a new executive department of government, the Department of Mines, to be presided over by a Secretary of Mining, a member of the Cabinet.

Gold, silver, copper, zinc, taxation, tariff and other subjects and problems upon the handling of which depends the future prosperity of the mining industry will be given their proper places on the program. The full list of subjects and speakers is too lengthy for inclusion in this article. No operator, no manufacturer of mining machinery and supplies, can afford to stay away from Chicago during the week of October 17-22, and judging by advance indications very few of them will.

TAX REVISION LEGISLATION

CONFRONTED with the problem of reducing the enormous tax burden under which the country has been staggering, at the same time providing for revenue sufficient to adequately finance the government, the administration has adopted a program of revenue legislation which, although it does not meet with unanimous approval, is probably the best measure of relief that can be expected under present conditions.

The policy of strict economy in government expenditures certainly is to be commended, and the effort of Congress to reduce taxes, as evidenced by the revenue bill which passed the House, is sincere. It must be conceded that the repeal of the excess profits tax, repeal of surtax rates above thirty-two percent, repeal of transportation taxes, repeal of the taxes on luxuries, beverages, insur-

ance, and proprietary medicines, and increase of the exemptions for heads of families and dependents, as a measure of permanent relief is a long stride in the right direction. There was no attempt made to shift the burden and in the reductions accomplished the wage earner, as well as business and industry, shares equitably in the relief granted.

The measure is now before the Senate, which will violate its traditional policy if it does not make some changes in the bill; but business and industry are now certain of a large measure of relief from the excessive war-time burden and can adjust their plans for retrenchment and recovery accordingly.

The mining industry has not been deprived in the new bill of any rights which are now operative under provisions of existing law, and which were recognized by Congress to be just and equitable because of the hazardous and uncertain nature of mining generally as an investment. Mining corporations will have to pay an increased income tax of twelve and one-half percent, which is two and one-half percent over the present rate; but it is believed by the authors of the legislation that the advantages to be derived from the repeal of the excess profits tax and the simplification of tax returns resulting from the abandonment of invested capital as a basis for computing deductions will more than offset any dissatisfaction which may result from the increased normal rate and will remove a source of inequality and discrimination.

RESULTS OF TRANSCONTINENTAL FREIGHT REDUCTIONS

UTAH OPERATORS WILL BENEFIT materially from the twenty-five percent cut in freight rates on bullion from Salt Lake valley smelters to eastern refineries which became effective August 11. The new schedule does away with the last increase of thirty-three and one-third percent and effects a return to the rates established by the Railroad Administration in June, 1918.

It is expected that the reduction, which amounts to \$5.50 a ton on bullion, will be reflected in a reduction of charges by Utah smelters. When the rate of \$22 was authorized by the Interstate Commerce Commission in August of last year the valley smelters imposed in consequence thereof an additional deduction from market quotations of one cent an ounce on silver, one-quarter cent a pound on copper and one-quarter cent a pound on lead. These deductions, with increased treatment charges, are estimated to have amounted to more than fifty cents per ton of ore in added costs to producers. Utah's ore production last year, exclusive of that of the Utah Copper Company, amounted to 1,343,000 tons. Theoretically, the savings resulting to Utah operators through the new bullion rates will amount to nearly \$675,000 annually. A very tidy sum, indeed.

The American Mining Congress, particularly the Utah and Colorado chapters, has been insistent and unremitting in its efforts to effect these savings, and now contemplates with satisfaction the benefits which will accrue to the industry. The new freight schedule is one of the factors whose operation is necessary to a revival of the mining business.

THE OPPORTUNITY AT CHICAGO

ONE WAY TO GET BUSINESS is to produce something which the other fellow needs and convince him by a visible demonstration that he cannot afford to do without it. This is an old way, but it is still one of the best ways. The mining operators and the manufacturers of mining machinery and equipment have chosen this as one of the methods for expanding their activities, and they are making the world sit up and take notice.

For be it known that the National Exposition of Mines and Mining Equipment to be held in Chicago October 17-22 in connection with the annual convention of the American Mining Congress has already become an international affair. Mexico, whose commercial future is inextricably entwined with that of the United States, has sent an exhibit, and Latin-American countries which offer such wonderful opportunities for export business are sending their most expert trade advisers to observe and take note. The latest developments in mining machinery, the most modern mining equipment, all of which will be exhibited there, will be studied by men capable of recognizing and appreciating their value, and it goes without saying that favorable impressions made upon these shrewd business men will be followed by orders.

Foreign trade is needed by America, even as American trade is needed by other countries. Not since this country cast off her swaddling clothes has the domestic market been able to absorb the entire American output of raw and manufactured commodities, and not until orders begin to arrive in large volume from other lands can our marvelously efficient mines, factories and farms return fully to a quantity production basis and trust to small unit profits for large aggregate returns.

But the exposition is being built primarily for Americans. Great as will be its appeal to the business man of Mexico, South America and Canada, greater still will be its message to the mine operator, the manufacturer and the general public of the United States. Its scope will be extensive and inclusive. Its dominant note will be educational. It will include, for instance, an instructive exhibit arranged by the coal operators which will give an accurate idea of the numerous factors entering into the cost of a ton of coal. This exhibit will amount to a revelation to the general public. A display of the same character has been arranged by the iron ore operators. The territory of Alaska will make an exhibit of all of its resources, including fishing, farming and animal production as well as mining. Inspection of the Alaskan section alone will be the equivalent in many respects of a tour half way around the world. Some of the Western States will have complete displays of their minerals. The whole vast array of mineral resources will be made complete and understandable by the exhibition of the machinery and equipment which made their development possible. In many respects the show will be of greater educational value than any other exposition held in a generation. It is not surprising that mining operators everywhere are planning to attend and that the press of the country is calling attention of the general public to the unparalleled opportunity for acquiring first-hand information of mining, a basic industry in forty states, and the most interesting, the most romantic industry in the world.

EIGHT HOUR DAY TOO SHORT!

WILL WONDERS NEVER CEASE? Reports from Germany are to the effect that laborers in Wurttemberg have objected to the eight-hour day, not because they believe in a forty-four-hour week, but because they think eight hours out of twenty-four constitute too short a working day. The reports have it that the workmen have absolutely refused to admit that there are any advantages in the short day, and cases have occurred in which the employes of plants have signed petitions to the government protesting unanimously against the limitation of the hours of industry.

A reaction has set about in England. The president of the Miners' Federation is quoted in the daily press as saying that the great strike was a serious mistake. For years the workers did less and less work and asked more and more pay and British officials encouraged them in this attitude, so that the production of three hundred and twenty tons per man in 1892 had decreased by March of this year to one hundred and seventy-four tons per annum. Now that the strike has been won, the workmen are beginning to realize it was an empty victory. A flooded mine means loss of profits to the owner, but it may mean the deprivation of the means of livelihood for the worker. Lost production is showing its effect in high prices which are felt keenly by those primarily responsible. A state of society depending upon big pay for little work is resting upon an insurance foundation, and when the house of folly comes tumbling down the impact is felt most severely by those who reared the unstable structure.

Will American labor zealots profit from the lessons which come from abroad? Omitting all consideration of the misery which claims the Russian workmen for its own, will they heed the experience of Germany and England? It is fervently to be hoped that they will, although the indications of their doing so are not any too favorable. Railroad employes are resisting efforts toward a return to fair wages and operating conditions. Coal mine workmen have given notice that they will not agree to a downward revision of pay scales next April. On the day before this was written, the president of the American Federation of Labor condemned wage reductions as an "economic crime," and the outlaw mine workmen of West Virginia collected to march under arms into a neighboring county.

But while these instances lend a dark color to the picture, it must not be concluded that the outlook is altogether black. Conditions will right themselves in the long run—the only question is, how long? Stated differently, will labor force a prolonged conflict, or will it co-operate with management and the public and by making mutual concessions restore economic levels in the shortest possible time and to the distinct advantage of all? Those who take the view that this will be labor's course are not without substantial reasons for their attitude.

American labor is the highest paid in the world. Working days are shorter, and work is more continuous the year around and is performed under more healthful conditions than anywhere else. Possessing a better education, and having more time for recreation and reflection, than the workman in any other country, the American workman is manifestly the most intelligent in the world. And every intelligent man knows that prosperity cannot be created by fiat; that no one can eat his cake and still have it; that wage scales cannot be sustained at

peak levels while working days become fewer and shorter. Is it too much to hope, that labor will translate this knowledge into action and co-operate with management in bringing about readjustment without unnecessary loss of time?

The rank and file of labor is more reasonable than its leaders, for it undoubtedly has more at stake. It is to be hoped that during the next few months, or years, the judgment of the rank and file will control in labor councils, so that such disastrous conditions as have followed the English strike will not be visited upon this country. Management is anxious to give as well as take, for management also has much at stake. The public can be relied upon to co-operate, for the public embraces both labor and management, is greater than either, and has everything at stake.

THE TAX EXEMPT SECURITIES PROBLEM

UNDER EXISTING LAWS vast amounts of liquid or circulating capital have been withdrawn from the normal channels of industrial and business enterprise and converted into tax-exempt securities issued by authority of the federal, state and municipal governments, and the situation is rapidly becoming one of the most vital problems confronting the nation. Liquid capital is essential to industrial development and trade expansion, and its withdrawal or diversion from the promotion and maintenance of basic industries produces an abnormal and depressing condition which seriously affects every industry and every commercial and labor unit dependent thereon. The volume of productive capital of the nation can be maintained only by constant investment; and a large portion of the gross product or income of industry must be used to replace capital that has disappeared in operations. If this replacement should be postponed for even one year, the productivity of labor would be enormously lessened. Coincident, therefore, with the increase in the volume of outstanding tax-free bonds, the country is experiencing an increase in the numbers of unemployed.

It is contrary to the spirit of government by the people that a class of citizens should be created whose wealth is exempt from taxation, who contribute nothing to the support of the government, whose ability and capital are separated from the vital pursuits of industry and business, and whose security from all duty and responsibility is certain to lead to an indifferent attitude toward the classes upon whom the burden of maintaining industry and government rests, and upon whom the added burden of taxation falls. With every new tax-exempt bond issue, the line of cleavage between the wealthy class; on the one hand, into whose possession these securities are constantly flowing, and the industrial and working classes, on the other, upon whom the tax burden is thereby increased, is becoming more apparent to all who are interested in the national welfare. Existing conditions have a tendency to induce the wealthy in every locality to encourage the issuance of bonds for local and civic improvement, thus increasing the value of their realty and industrial holdings, which can thereafter be sold and the money received reinvested in tax-free bonds.

It will be seen that eventually this class will become entirely divested of taxable personal and realty holdings and will possess no property or have income that is subject to taxation, although they will wield great political influence on account of their

position as creditors. The masses, therefore, both labor and capital engaged in industrial enterprise, will occupy the position of debtors, will carry an increased tax burden, not only for the ordinary maintenance of the local and federal governments, but also for the purpose of paying interest and principal on the bond-holdings of the tax-exempt class. The insistent demand for such securities is encouraging public indebtedness beyond ability to pay, and unparalleled extravagance and inefficiency in the expenditure of funds raised in this manner.

It may be contended that capital, diverted from normal channels into new avenues of investment, must eventually reach a point where it will flow back into those normal courses of industry, so that the general industrial depression resulting from that cause alone would be only temporary; but this is extremely problematical. When it is considered that a state or municipality must impose additional taxes upon an already overburdened public for the purpose of paying interest and creating a reserve fund for the ultimate retirement of the bonds, not only is the original draft upon the country's investment pool a potent factor or influence upon industrial retrenchment, but the constant annual drain, which takes vast sums out of the pool for an indefinite period until such retirement, must be reckoned with. The enormous demand upon the reservoir of liquid capital during the past two years as the result of the purchase of tax-free securities is choking industry, and will keep the level of capital for industrial purposes below normal so long as their issuance continues, thus fostering unemployment and industrial unrest. The permanency of employment in industry is thereby made insecure, although temporary employment is created for certain classes by an abnormal demand for road building and civic improvement, and the uncertainty of future occupation at a remunerative or living wage destroys the worker's morale, lessens his efficiency, and tends to demoralize the labor situation generally.

The taxpaying public may well view this growing menace with apprehension, and take immediate steps to secure the enactment of legislative or constitutional measures necessary to prevent its continued growth. If Congress should attempt to bring within the range of income tax state and municipal bonds, there is little doubt as to how the Supreme Court would decide the question of constitutionality, as it has virtually declared by judicial dicta in the case of *Evans v. Gore*, recently handed down, that Congress does not possess such power, and Chief Justice William Howard Taft, in an article published in 1918 while he was still a private citizen, expressed the same view, which probably is still the opinion he holds concerning the question. Resolutions have been introduced by Congressman Louis T. McFadden, Chairman of the House Banking and Currency Committee, and by Senator Reed Smoot, providing for an amendment to the Constitution which will give Congress the power to remedy the evil, and the immediate enactment of such an amendment seems imperative.

ADVERTISING AND MINING

NO BETTER TEST of progression or proficiency in business can be found than the advertising policy of any large concern in depressing periods such as that from which we now happily are about to emerge. No set of business men in the United States has stood this test, or is still standing it, more creditably than the mining operators and those who cater in a commercial way to their needs.

The firm which is shortsighted and timid, either through unwisdom or inexperience, at the first indication of a slump cuts its advertising appropriation. Thereupon its business inevitably declines whether the slump ever materializes for its competitors or not. The result is to an extent what might be expected if its salesmen were recalled from their routes, its telephones plugged and the sign of the firm scraped off the front.

The wide-awake firm, the substantial firm which refuses to die or be killed, ignores the first sign of depression and answers the second with an increased advertising appropriation. If the majority of all firms prove to be of the wide-awake kind, the threatened slump is either staved off or prevented altogether.

Sometimes a panic is actually forced, as when a sufficient number become affrighted at unsettled conditions and yield to fear and pessimism. At other times a period of depression follows as a matter of course, as when half the world through war or idleness dissipates its resources and thereby loses its purchasing power. But even in such circumstances the modern American business man continues to advertise and resolves every question whether to purchase or not to purchase additional white space in the affirmative. He knows that business will never go completely to the dogs, and that the advertiser who keeps his wares constantly before the public will get the bulk of business during the stringency and have every advantage over non-advertisers when prosperity returns.

During the last disheartening year the mining industry has pursued this policy. There have been recessions in the volume of space used, but in the main the operators and the manufacturers of mining equipment have never ceased to advertise. It is within the knowledge of the Mining Congress Journal that they have held their advertising programs more nearly to a normal basis than have the leading concerns in many other lines.

The Special Convention Issue of the MINING CONGRESS JOURNAL, which will be perused by twice the usual number of readers, will carry an unprecedentedly large volume of advertising. On August 20, forty days before the date of publication, contracts had been closed for a greater amount of display matter than was carried in the 1920 Convention Issue. Many of the firms to be represented in the Special Issue will make their convention message the beginning of an extensive and intensive advertising campaign to run throughout the ensuing twelve months. Returning prosperity will find mining and its allied industries equipped to take full advantage of the opportunities which the year 1922 will assuredly have to offer.

SECRETARY FALL AND OIL SHALE

"EVENTUALLY, WHY NOT NOW?" summarizes Secretary of the Interior Fall's view respecting the development of a definite oil shale program. The Secretary's statement made to a Congressional committee in support of an appropriation for a three-year investigation constituted an unanswerable argument for the adoption of a clear and continuing policy, and that without further delay.

Disagreement obtains as to the life of our known petroleum fields and the probable extent of resources yet to be discovered, but no one disputes the assertion that the demand for petroleum products will continue to become greater and greater and that the known supply must at some time be augmented by new discoveries or the development of substitutes. In the latter event, oil shale offers the most likely recourse. It is conceded that its potentialities are great and that shale products will ultimately become commercial factors of the first importance. Secretary Fall takes the view that the country should be forehanded enough to conduct its preliminary investigations at once and be ready to meet the emergency whenever it may arise and howsoever pressing it may be.

Many problems, both practical and scientific, must be solved. What is the best method of mining shale? What process of distillation will lead to the recovery of the greatest amount of highest grade oil at lowest cost? What are the possibilities for production of by-products, and what will be the market demand for them when they are produced? Will a long and expensive campaign of education be necessary before the public will consent to use shale products? These and many other questions must be answered, and the sooner investigation to that end is completed the sooner will the shale-products industry be established on a commercially profitable basis.

Secretary Fall estimates that three years will be required to secure the preliminary information which must precede the establishment of the oil shale industry upon a sound basis. The cost of carrying out the research program of the Bureau of Mines will be \$240,000, or \$140,000 for the first year and \$50,000 for each of the two years following. It has been estimated that the shale beds of a few western states alone would yield sufficient oil, at the present rate of consumption, to supply the United States for one hundred and twenty-five years. Government assistance to such an end would be economical even at a cost of \$240,000,000. Secretary Fall is altogether justified in asking for an appropriation of one percent of this amount.

PITTMAN ACT PURCHASES TO CONTINUE THREE TO SEVEN YEARS

THE PROBABLE LIFE of the Pittman silver purchase act is a subject of deep interest to the miner. Any discussion must take into consideration at the outset the following four points:

1. The Director of the Mint in his report for 1920 states that about 208,000,000 ounces of silver have been sold under the Pittman Act, which, of course, must be replaced.

2. The total amount of silver purchased by the mint up to the close of business July 27th, was 64,240,816 ounces.

3. The mint did not commence the purchase of

silver in 1920 until May, when the market price of silver declined below the Pittman price. The total amount of silver purchased during 1920 was 29,907,361 ounces.

4. From the above figures it appears that 144,000,000 ounces have yet to be purchased by the mint.

Silver is being produced in the United States at about the rate of 35,000,000 ounces per year which is half of the normal production. The silver production for 1921 will probably be about 45,000,000 ounces, for the reason that there was a large amount of ore produced in 1920 from which the silver was recovered in 1921, which would artificially increase production for the first six months of this year. The decline in production of by-product silver will probably be more rapid from now on. Assuming that the base metal output of copper and lead remain at their present output for two years, silver production will probably not exceed 35,000,000 ounces per year dating from August 1, 1921. It is not likely that a material increase in the production of copper will take place during that time. It will probably be several years before normal production can be resumed. Some improvement in the third year may be looked for, reflecting in the possible increase in the output up to 45,000,000 ounces of silver. This should make a total anticipated output for the next three years of 115,000,000 ounces. After the third year the production of silver may still further be increased so that the silver purchases under the Pittman Act could be completed within a half year. It would seem therefore, to be a conservative estimate that the Pittman Act purchases will continue for three and a half years on a minimum basis from August 1, 1921.

It is a notable fact in connection with making such an estimate that the production of silver from silicious ores has not so far been stimulated by the Pittman price. There may be a slightly increased output from this source if costs of production decline. Should the production of copper and lead be still further depressed and should the open market price of silver exceed the Pittman Act price, an extension of the time in the purchases under the Pittman Act would result.

From May, 1919, to May, 1920, the open market price of silver exceeded the Pittman price and no purchases were made by the mint during that period. As to the likelihood of the international price exceeding the Pittman Act price there is, in the opinion of close students of the situation, very little likelihood during the next three or four years. A great deal of silver has been released in the process of lessening the fineness of subsidiary silver coin in England and other countries. A great many subsidiary coins have been put into circulation which do not contain silver. There probably exists a desire on the part of many of the European countries to restore their high-grade subsidiary silver coinage, but the conditions of economic stress under which they are now operating would probably be prohibitory of their replacing their base coin circulation for some time to come.

The industrial consumption of silver, at present depressed in the photographic field, will probably recover in the near future. The consumption of silver in the manufacture of silverware has already shown some decrease and the future prospects of increased consumption depend largely upon the general prosperity of the nation, the time for resump-

tion of which is in doubt. There may be other contingencies with regard to the Oriental consumption of silver which will greatly influence the situation, but these cannot be anticipated with any degree of accuracy. It would, therefore, be safe to estimate the life of the Pittman Act purchases at three and a half years dating from August 1, 1921, which it is conceivable might be extended not to exceed seven years in the event that the international price should exceed the Pittman Act price, and all other factors were favorable.

THE PRICE OF COAL

THE PUBLIC IS DECEIVING ITSELF if it believes the Congress of the United States by enacting regulatory legislation can lower the price of coal. No governmental agency, national or state, can do that.

Advocates of government regulation make the mistake of holding the operators, or owners of the mines, responsible for high prices, when in reality they are no more responsible than are the consumers themselves. The two chief factors in coal prices are high wages and high freight rates, and no amount of regulation of the mine owners would bring either one of them down.

A few years ago the cost of producing a ton of anthracite was \$2.50. Now the labor cost alone is \$7.08 (government figures). The mine owner sells this coal for \$7.75, leaving a gross margin of 67 cents out of which he must pay selling expenses, taxes, etc., before he can realize a penny of profit. The amount paid to mine labor alone is more than the selling price of coal before the war.

To the \$7.75 received by the mine owner must be added \$3 or more for freight, making the cost to the retailer \$11 per ton at the lowest. The retailer must also make a profit and the laborer who delivers the coal to the cellar must be paid.

Freight from the bituminous fields of Colorado to Denver, formerly amounting to \$1 per ton, now is \$2.90. The lowest paid underground laborer receives \$7.75 for eight hours work. In the bituminous fields of the Southern and Central States labor costs have risen to equally exorbitant figures. The last freight rate increase alone added \$1.04 to the cost of every ton of coal delivered in Washington, D. C. The increase to cities farther removed from the mines was proportionately greater, ranging from twenty-five to forty percent of the retail price.

Freight rates and wages are the controlling factors in coal prices and, as Senator Reed of Missouri said:

"Until these controlling facts are changed, the country is confronted with the problem of high-priced coal. That problem, I repeat, can only be effectively and permanently solved by a reduction in the cost of production and a reduction in freight rates."

The owners of the mines cannot reduce either freight rates or wages. Freight rates are controlled by the Interstate Commerce Commission, and high wages were fixed by another government commission which prescribed that the scale should continue in effect until April of next year. The public and the Congress may assist in bringing about lower coal prices, not by prescribing burdensome and expensive regulation of the coal-mining industry, but by co-operating with the industry in seeking deflation of wages and freight rates.

ENGINEER STUDENTS GET THE NEWS FROM MINING CONGRESS

AT THE UNIVERSITY OF ILLINOIS, Department of Mining Engineering, the faculty and student body keep abreast of the times by reading the publications of the American Mining Congress. So popular has this custom become that one copy of each publication has become insufficient, and Professor H. H. Stoeck, of the College of Mining Engineering, has sent the Mining Congress the following letter:

"I will greatly appreciate the courtesy if you can send us an extra copy, or copies, of the MINING CONGRESS JOURNAL, the proceedings of the annual convention and the weekly bulletin for use in our mining library and mining seminar. The single copy of each which we now receive is placed in the general engineering library, which is in another building and not so easily accessible for our students. Moreover, a single copy cannot be advantageously consulted by an entire class of students without a great loss of time.

"We aim, at Illinois, to have our students, and particularly the more advanced ones, keep in touch with current mining news and mining legislation, and I know of no way in which they can do this for the whole mining industry so well as through the publications of the Mining Congress.

"I believe it is very important that young engineers should be shown the necessity for keeping in touch with current mining events in addition to their technical instruction."

FALL GIVES PERSONAL ATTENTION TO MINING BUREAUS

MINING MATTERS will receive the personal attention of Secretary of the Interior Fall. The Interior Department embraces more bureaus and other subordinate bodies than any other government department, and while the Secretary is responsible for the administration of all of them, it is impracticable for him to devote his personal attention to each. Hence, the responsibility for important bodies is delegated to others. During the first ten days of August, a new chart for the administration of the Interior Department was prepared, and this chart shows that the Bureau of Mines, the Geological Survey, the War Minerals, Relief Commission, the Alaska Engineering Commission, and the Field Inspectors will all come directly under the Secretary of the Interior. This arrangement is already in effect.

COMPREHENSIVE STATEMENT ISSUED UPON SILVER SITUATION

ATTENTION IS DIRECTED to the article entitled, "The Silver Situation," on page 348 of this issue. This excellent analysis of a subject of great importance to the mining industry is an official government treatise, which will be in the Federal Reserve Bulletin, to be printed September 1. It is given contemporaneous publicity in the MINING CONGRESS JOURNAL in order that it may reach the large number of silver operators and others who will be particularly interested in the information presented.

PROSPERITY FOR MINING INDUSTRY OBJECT OF CONVENTION

THE PURPOSE of the Twenty-fourth Annual Convention of the American Mining Congress, which is to be held in Chicago, October 17-22, is to plan for prosperity for the mining industries. No single mine operator, no isolated division of the mining industry can in itself effectively attempt to solve the tremendous economic problems which confront the mining industry. Collective thought and co-operative effort are essential, and this convention of the American Mining Congress will bring together the influential representatives of the industry in order to work out plans and policies for concerted action.

In arranging for the convention program the effort has been made to bring out in the general sessions of the convention the vital issues which confront mine operators and to carry on in the conferences and group discussions the development of these issues in such a way that the convention as a whole in its closing session can formulate and endorse a platform which will be of national benefit, both to the mining industries and to the public.

Among the important and vital subjects which will be discussed in Chicago is the topic, "The Railroad and the Mining Industries," to the consideration of which an entire session will be devoted.

Transportation costs and the relationship of transportation to all of the basic mining industries is one of the significant problems which confront the mine operator. The Association of Railway Executives will be represented by a nationally known railroad leader at the convention in Chicago to present the point of view of the railroads in connection with the industrial problems confronting the nation. This address will be followed by a presentation of the point of view of the mining industry in connection with transportation from the standpoint of the various divisions of mining, including metal mining and the coal industry.

Another important session will be devoted to the question of "Co-operative Effort in the Mining Industry and governmental interference." It is generally recognized that co-operative effort in the development of the mining industry is one of the most effective means for preventing wasteful production and in developing continuity of production and distribution of mine products. At the present time efforts to secure co-operation and to develop a consolidation of activities in order to prevent such wasteful methods and to stabilize industrial conditions are subject to the question of governmental interference. The question will be raised at the Chicago convention as to the possibility of developing a movement endorsed by all branches of the mining industry. This is a question of vital significance to mining and all other business enterprises. It will be presented from all points of view in Chicago. There will be an open discussion and it is hoped that as a result of these sessions a policy will be formulated which will be of benefit to all business enterprises.

A third general session will be devoted to the important question of "International Developments and Their Relation to the Domestic Mining Industry." American business at the present time is real-

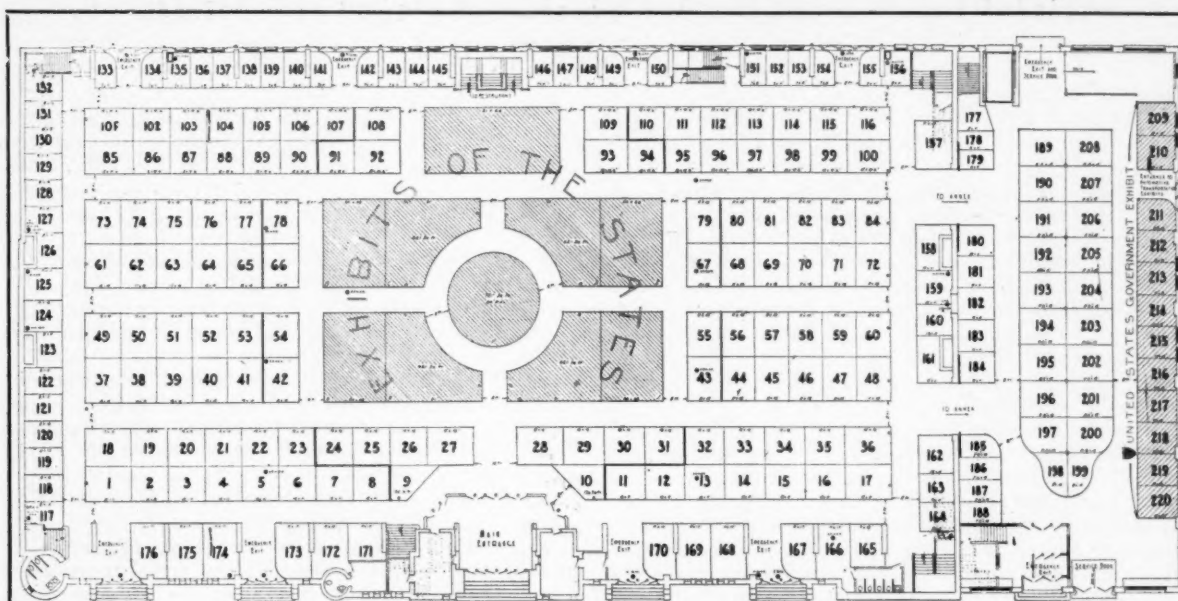
izing as never before the importance of international relations as a direct factor in connection with business developments here in the United States. This is a question which has more than one side, and in the discussion of this topic there are many points of view. At the convention of the American Mining Congress an effort will be made to present fully the different aspects of this subject.

The importance of foreign trade development in connection with the mining industry will be presented by one of the well known leaders of American banking who has recently returned from abroad where he has had an opportunity of making a special study of European developments in connection with their effect upon domestic industry. His presentation of this subject will be followed by a general discussion from the point of view of different sections of the mining industry.

METAL MINING—The American Mining Congress is the representative of the metal mining enterprises of our great western states. These enterprises have been one of the great factors in the industrial development of this country. The depressed business conditions which have effected them during recent months have had a great effect upon all business. At the convention of the American Mining Congress, therefore, special emphasis will be laid on the problems confronting the further development of mining enterprises in the western states and on the possibility of developing mineral properties in the south and other mining districts. There will be a discussion of the utilization of water power in the further development of mining. There will be a special group session devoted to the question of uniform state legislation in connection with the taxation of mine properties and in the valuation of mines. The problems of labor in connection with mining will be considered from different angles, especially with regard to the possibility of bettering the relationship between employe and employer. Emphasis will also be placed upon the possibilities for new mineral developments, including the utilization of the great deposits of manganese, tungsten and quicksilver.

COAL SESSIONS—The coal industry has been for some time a target for misrepresentation on the part of the public, the press and the politician. The coal industry has the opportunity to eliminate some of this misrepresentation by developing a constructive program which will tend to solve some of the essential problems which confront the coal operator. The sessions devoted to the coal industry at the convention of the American Mining Congress will bring out the question of the legal responsibilities of labor unions, the relationships between labor unions and the coal operators, the possibility of developing co-operative effort without governmental interference and other problems of equal importance.

Aside from the general sessions of the convention the group sessions devoted to special conferences and discussions will be of particular interest. There will be conferences of gold producers, in regard to the problems which confront the production of gold and other precious metals here in the United States.



FLOOR PLAN OF CHICAGO COLISEUM AND ANNEX

The entire space of both buildings, which together form one of the largest exhibit places in the world, will be required for housing the National Exposition of Mines and Mining Equipment, October 17-22. The Exposition will be international in character and upon a greater scale than has ever been attempted in behalf of the mining industry. It has been planned for the dual purpose of educating the public in matters pertaining to the mining industry and bringing to the attention of buyers of mining equipment the best types of machines and supplies.

Another group session will be devoted to the question of taxation, both national and state. There will be a special session devoted to education as well as sessions devoted to a consideration of the oil-shale industry, the development of Alaska and the possibilities for American investment in Mexican mineral enterprises.

STANDARDIZATION CONFERENCES—The work of the Standardization Division of the American Mining Congress is one of its most important features. The standardization conferences at the twenty-fourth annual convention in Chicago will be particularly important and of special interest. This is particularly true of the work which has been done under the able leadership of Colonel Warren R. Roberts in the coal section of the Standardization Division. Two days will be devoted to group sessions on the part of the standardization conferences and one general session of the convention which will be devoted to standardization as a topic.

Generally speaking, the twenty-fourth annual convention of the American Mining Congress will be the most significant industrial meeting of the year. It will bring together 2,500 delegates representing all branches of the mining industry, and the policies formulated at Chicago will be a basis for concerted efforts to bring about adjustments of mutual benefit to the industry and to the public.

NATIONS, STATES AND MINING DISTRICTS TO BE AT EXPOSITION

THE NATIONAL EXPOSITION of Mines and Mining Equipment which is to be held in Chicago in conjunction with the twenty-fourth annual convention of the American Mining Congress is attracting a nation-wide interest.

The Mexican government, which is to be represented with an interesting exhibit illustrative of Mexico's mineral opportunities, has completed its final arrangements for the exhibit in Chicago.

Louis N. Rubalcaba, Assistant Minister of Commerce and Industry, was, recently in Chicago to confer with the convention management relative to this exhibit.

At Chicago there will be approximately sixty cases of ore samples illustrative of mining developments in every one of the individual states in Mexico, and it is hoped that this meeting will do much to bring about a closer co-operation in connection with the development of mining enterprises in Mexico.

Many important western mining states have already completed their arrangements for important exhibits. California has arranged to place an exhibit occupying approximately 700 square feet, which will illustrate the production of gold in California and will bring out in a graphic way the importance of the mining industries of that state. In addition to the exhibit from California, there will be exhibits from Utah and Wyoming, an educational exhibit from Arizona and an interesting display from the state of Oregon and an exhibit from Colorado.

The Lake Superior mining district in Michigan, Wisconsin and Minnesota, it is hoped, will be effectively represented by a joint exhibit illustrating mining enterprises, mine operation, and the possibilities for further mining development in these states. A group of representative mining men recently met in Duluth and conferred as to plans for such an exhibit and an active interest is being shown throughout this region in connection with the convention.

The anthracite coal industry, as well as the bituminous coal industry, will be well represented in

LIST OF EXHIBITORS FOR NATIONAL EXPOSITION—COMPLETE TO AUGUST 15

Space	Exhibitor	Address	Space	Exhibitor	Address
10	Engineering & Mining Journal	New York, N. Y.	158	Westinghouse E. & M. Co.	Pittsburgh, Pa.
18	Henion & Hubbell	Chicago, Ill.	159		
19			160		
21	Streeter-Amet Weighing & Recording Co.	Chicago, Ill.	161	Car Dumper & Equipment Co.	Chicago, Ill.
22			162	Hyatt Roller Bearing Co.	New York, N. Y.
23	Lima Locomotive Works	Lima, Ohio	179	Moloch Company	Kaukauna, Wis.
27	Robert Holmes & Bros.	Danville, Ill.	180	Thomas Elevator Co.	Chicago, Ill.
28	The Jeffrey Co.	Columbus, Ohio	181		
31	Hercules Powder Co.	Wilmington, Del.	184	Mining & Safety Device Co.	Bowerston, Ohio
32	Jacobsen & Schraeder	Chicago, Ill.	82	Ironton Engine Co.	Ironton, Ohio
33	Krehbiel Co.	Chicago, Ill.	83		
35	Mine & Smelter Supply Co.	Denver, Colo.	190	Austin Machinery Co.	Chicago, Ill.
36	Ohio Brass Co.	Columbus, Ohio	196	Mancha Storage Battery Loco. Co.	St. Louis, Mo.
37	Fulton-Kenova Mine Car Co.	Kenova, W. Va.	197		
49			183	Siebe-Gorman, Ltd.	Chicago, Ill.
42	Novo Engine Co.	Lansing, Mich.	93	Chalmers & Williams, Inc.	Chicago Heights, Ill.
43	Southern Wheel Co.	St. Louis, Mo.	150	Allis-Chalmers Mfg. Co.	Milwaukee, Wis.
55			30	W. A. Jones Foundry & Mach. Co.	Chicago, Ill.
44	James H. Channon Co.	Chicago, Ill.	53	Railway & Mine Supply Co.	Chicago, Ill.
45	American Cyanamid Co.	New York, N. Y.	47	Templeton, Kenly & Co., Ltd.	Chicago, Ill.
48	Chicago Pneumatic Tool Co.	Chicago, Ill.	20	Hazard Manufacturing Co.	Wilkes-Barre, Pa.
54	Goodman Manufacturing Co.	Chicago, Ill.	29	E. J. Longyear Co.	Minneapolis, Minn.
60	A. Leschen & Sons Rope Co.	St. Louis, Mo.	191	Lake Superior Loader Co.	Duluth, Minn.
65	Crane Company	Chicago, Ill.	56	Roberts & Schaefer Co.	Chicago, Ill.
66	Toledo Pipe Threading Machine Co.	Toledo, Ohio	120	General Electric Co.	Schenectady, N. Y.
67	Sullivan Machinery Co.	Chicago, Ill.	121		
68	Electric Service Supply Co.	Chicago, Ill.	98	Magnetic Mfg. Co.	Milwaukee, Wis.
72	Geo. D. Whitcomb Co.	Rochelle, Ill.	15	Sanford-Day Iron Works	Knoxville, Tenn.
78	Stimpson Equipment Co.	New York, N. Y.	16	Myers-Whaley Co.	Knoxville, Tenn.
79	Wyoming Shovel Works	Wyoming, Pa.	17		
80	Frank S. Betz Co.	Hammond, Ind.	127	Pittsburgh Coal Washer Co.	Pittsburgh, Pa.
84	Philadelphia Storage Bat'ry Co.	Philadelphia, Pa.	204	Dinwiddie Steel & Mfg. Co.	St. Louis, Mo.
88	Keystone Lubricating Co.	Philadelphia, Pa.	24	Weinman Pump Mfg. Co.	Columbus, Ohio
89	American Manganese Steel Co.	Chicago, Ill.	40	Addressograph Co.	Chicago, Ill.
90	Hauck Mfg. Co.	New York, N. Y.	41		
92	Mine Safety Appliance Co.	Pittsburgh, Pa.	77	Ludlow-Saylor Mach. Co.	St. Louis, Mo.
94	Chase Metal Works	Waterbury, Conn.	200	Atlas Car & Mfg. Co.	Cleveland, Ohio
95	Lincoln Steel & Forge Works	St. Louis, Mo.	159	Baldwin Locomotive Works	Philadelphia, Pa.
96			26	Channon Mfg. Co.	Chicago, Ill.
97	Buckeye Blower Co.	Columbus, Ohio	193	Dings Magnetic Separator Co.	Milwaukee, Wis.
99	Edison Storage Battery Co.	Orange, N. J.	165	Ottumwa Box Car Loader Co.	Ottumwa, Iowa
123	Tool Steel Gear & Pinion Co.	Cincinnati, Ohio	100	John A. Roebling & Sons Co.	Trenton, N. J.
125	The American Blower Co.	Detroit, Mich.	10	Coal Age	New York, N. Y.
142	Wm. Lalor Co.	Chicago, Ill.	9	Coal Industry	Pittsburgh, Pa.
143	Federal Electric Co.	Chicago, Ill.	194	American Mine Door Co.	Canton, Ohio
144	Duntley-King Pneumatic Tool Co.	Chicago, Ill.	122	Duro Metal Products Co.	Chicago, Ill.
145	Stonehouse Steel Sign Co.	Denver, Colo.	86	Electric Steel Co. of Indiana	Indianapolis, Ind.
146	Keystone Cons. Pub. Co.	Pittsburgh, Pa.	185	American Car & Foundry Co.	New York, N. Y.
147	Electric Storage Battery Co.	Philadelphia, Pa.	186		
148	Bastain Blessing Co.	Chicago, Ill.	91	Nordburg Manufacturing Co.	Milwaukee, Wis.
157	Hardinge Company	New York, N. Y.	173	The Dictaphone Company	Chicago, Ill.

Chicago at the National Exposition. The Hudson Coal Company of Scranton, Pa., will have a complete working model of the famous Loree Breaker. This model shows the processes and machinery used in the handling of coal from the mouth of the mine to the loading on the car. This exhibit will occupy a thousand square feet of floor space and will be an extremely interesting demonstration. In addition, there will be a series of educational charts and diagrams illustrative of the various factors in the anthracite industry while the bituminous coal operators will show similar material in connection with the mining of soft coal in the district of the Central Competitive regions.

A central feature of the entire exposition will be the exhibit of Alaska, which has appropriated a special fund for the purpose of featuring the mining possibilities and opportunities for development in the territory. The Alaskan exhibit will be illustrative of the great opportunities which are presented there and will be perhaps the most spectacular of any of the public exhibits.

In addition to the public exhibits, the management of the convention and exposition has already closed more than 100 contracts with large manufacturing firms, which will display all the latest devices in mine equipment machinery. There will also be splendid exhibits illustrating special forms of separators for the concentrating of ore and minerals. Crushers, various forms of ventilating machinery, oil burning appliances, oxygen breathing apparatus, electric hoists, oxyacetylene and oxyhydrogen welding and cutting apparatus, storage batteries, mine locomotives, car dumpers, self-dumping cages, rotary car dumpers, automatic car lifts, helical adjusting loading chutes, special forms of mine weighing and mine recording instruments and an especially interesting exhibit of underground loading machinery.

The Annex of the Coliseum has been so arranged that there will be 250 feet of railway trackage of 42-inch gauge in operation. Mine locomotives will be seen moving and handling cars on this track and there will be a special installation which will show automatic mine doors in operation.

There will be a distinct international flavor to this exposition in Chicago, as most of the Latin-American countries will be represented with official delegations whose members will make an expert study of American mine equipment machinery, and it is believed that in the coming years there will be exhibits at each of the annual meetings of the American Mining Congress from all of the Latin-American countries.

Special arrangements have been made for the entertainment of delegates attending the convention and exposition.

Cornish wrestling is a typical sport in the mining districts in northern Michigan and Minnesota, and

there will be at Chicago a championship contest for teams representing various mining districts. The participants will be amateurs of very high rating and they will furnish a clean, stirring series of contests.

Special entertainments have been arranged for the wives of delegates. A general smoker and a formal banquet will be given for the delegates.

The National Exposition of Mines and Mining Equipment will be one of the most interesting and significant industrial expositions which has ever been staged in the United States. It is believed that this meeting will become a notable annual event and that it will do much to focus public attention upon the mining industry.

SECOND NATIONAL STANDARDIZATION CONFERENCE

GREAT INTEREST is being manifested in the special call, which is being issued in conjunction with the twenty-fourth annual convention of the American Mining Congress to be held in Chicago, October 17-22, for the Second National Standardization Conference.

The first preliminary Standardization Conference was called at St. Louis by this organization in 1919. Mining operators as well as manufacturers of mining equipment and supplies took great interest in the movement. Originally the Committee on Standardization of the American Mining Congress was but a small one devoting its time to the study of the standardization of electrical equipment in coal and metal mines. After the meeting in St. Louis a comprehensive committee was organized which included representatives of both the coal and the metal industry. Col. Warren R. Roberts, president of Roberts & Schaefer Manufacturing Company, of Chicago, accepted the chairmanship of the coal mining branch. Charles A. Mitke, a consulting engineer of national repute, of Bisbee, Arizona, accepted the chairmanship of the metal mining branch. The work has now grown to the extent that there are fifteen sub-committees each with an average personnel of ten members. Each of these sub-committees is studying special subjects pertaining to standardization of mining methods, practice and equipment. Safety and welfare committees have during the year 1921 been added to the work of these general committees.

It is planned at the Chicago convention to have the largest attendance ever assembled to discuss the subject of standardization. Invitations have been extended to practically a thousand mining companies, coal and metal, to send representatives of their company to this conference. In addition, practically a thousand invitations have been extended to the manufacturers of mining equipment and supplies. The replies so far received indicate that there will be a record-breaking attendance, and that the reports which are to be submitted by the various sub-committees, through their chairmen, will be of unusual interest. Many of these sub-committees are holding preliminary meetings in order that the reports which they render to the convention may be the most comprehensive possible for them to make at this time.

In Pittsburgh, on August 4, a sub-committee of the Committee on Underground Transportation, of which C. E. Watts, of Windber, Pa., is chairman, held a meeting at the William Penn Hotel.

The meeting was called to order by the chairman at 11 a. m., with the following members of the committee present: R. L. Kingsland, Consolidation Coal Co.; W. K. Hansen, Hockensmith Wheel & M. Car Co.; H. M. Estabrook, Standard Steel Car Co.; R. C. Kepner, American Car & Fdry. Co.; C. E. Watts, Berwind-White Coal Co.; H. M. Motherwell, Bureau of Mines; A. E. Ostrander, American Car & Fdry. Co.; C. I. Witmer, Westmoreland Coal Co.; L. M. Roe, American Car & Fdry. Co.; J. Milliken, Industrial Car Mfrs. Inst.

As this was the first meeting of the sub-committee covering the Standardization of Coal Mine Cars, the chairman explained in considerable detail the real work which the American Mining Congress is endeavoring to do in standardization work; that Colonel Roberts is chairman of the General Committee on Standardization of Coal Mines; that C. E. Watts, mechanical engineer of the Berwind-White Coal Company, is chairman of the Committee on Underground Transportation; that he in turn had subdivided his work into four committees, one on the subject of locomotives, one on tracks and signals, one on shaft equipment and one on design and construction of coal mine cars, including safety appliances. This latter subject was the one assigned to this committee.

Some portions of the report of the Committee on Underground Transportation, submitted to the American Mining Congress in Denver last fall, were read, showing that definite recommendations covering track gauge, track curvature, wheel base and over-all length of cars had been made.

There was a spirited discussion relative to the best means of approaching the possibilities of standardizing parts of coal mine cars. The impracticability of establishing definite standards for cars operated in existing mines was well developed. It was decided that the best results would be accomplished should this committee make recommendations for some of the detailed parts of cars rather than to attempt to make definite recommendations covering car lengths, widths, heights and sizes.

It was decided that specifications for materials, sizes and types of such items as rivets, bolts, car irons, drawbars, bumpers and couplings, could well be standardized; that recommendations governing sizes of lumber and sheet steel for car bodies could be given; that the question of wheels, sizes and shapes could well be investigated and definite recommendations be made.

As a result of these deliberations committees on the following subjects were appointed: Types of hand brakes; sizes and types of drawbars, bumpers and couplings; sizes of rivets, bolts and irons for both wood, steel and composite car bodies; sizes of lumber and steel shapes for car bodies; and the Committee on Wheels will present definite recommendations leading to standardized diameters, treads and flanges, with definite recommendations covering the length of wheel hubs together with the relations of the hub to the flange of the wheel for both roller and plain bearings for the most generally used sizes of cars.

R. L. Kingsland, general superintendent, Consolidation Coal Company, Fairmont, W. Va., was appointed chairman of the Committee on Sizes of Rivets, Bolts and Irons for both wood, steel and composite car bodies. C. K. Witmer, master mechanic, Westmoreland Coal Company, Irwin, Pa., was appointed chairman of the Committee on Wheels; H. M. Motherwell, mechanical engineer, U. S. Bureau of Mines, Pittsburgh, Pa., was appointed chairman of the Committee on Types of Hand Brakes. Chairmen of the two remaining committees will be designated at a later date.

The chairman of these sub-committees were respectively asked to make up their own individual committees, to represent as far as consistent the several coal fields and yet keep their committees sufficiently small to make good active working committees; to solicit particularly the aid of mine operators in their work and to call on car manufacturers for assistance when desired. The several chairmen were requested to get their committees together and work just as soon as possible. It was explained that the chairman of the committee as a whole is very glad to co-operate with them at all times and to place at their disposal all the data on file covering the standardization work of the Industrial Car Manufacturers' Institute.

There was material discussion on the desirability of having definite specifications covering the materials used in coal mine cars. The advantage of using well known standard specifications that would be suitable for the construction of the cars was well discussed with the result that it was moved, seconded and carried, that the American Society for Testing Materials' specifications should be adopted as standards for steel plates, bars and shapes, for bolts and rivets, and for grey iron, malleable and steel castings.

Many members of the committee will attend the annual meeting of the American Mining Congress at Chicago, October 17 to 22.

No effort is being spared to make this, the Third Annual Standardization Conference to be called under the auspices of the American Mining Congress, the greatest meeting of its kind ever held. We believe that its importance calls for the corporation of operator and manufacturer alike and that the deliberations will be of untold value to the mining industry.

RHODES WOULD STIMULATE GREATER USE OF NON-METALS

REPRESENTATIVE MARION E. RHODES, of Missouri, Chairman of the House Committee on Mines and Mining, has introduced a bill providing for the investigation by the Bureau of Mines of non-metallic minerals and their chemical derivatives. Included within the purview of the measure are about forty-five different minerals, embracing all of those contemplated when the stimulation of the production of war minerals was first discussed. Immediately after its introduction the measure was sent to the Secretary of the Interior for consideration, in conformity with the usual policy of the Mines Committee.

Congressman Rhodes introduced the measure of his own volition, and not upon the request of the Bureau of Mines or other authorities in the Department of Interior. It is his firm belief that the commercial possibilities of the minerals involved in the measure, including such minerals as sulphur, phosphate rock, feldspar, potash, mica, graphite, talc, barytes and limestones are not fully realized, and that investigation by the Bureau of Mines will result in their increased utilization and the development of several new American industries as well as the enlargement of many which already exist.

The bill introduced by Congressman Rhodes does not carry an appropriation. Should the measure be approved by the Department of Interior and enacted into a law by Congress, an appropriation will be asked for.

SPEEDY WORK BY MINES BUREAU

WITHIN TWENTY-FOUR HOURS after the last reports had been received from state mine inspectors, the United States Bureau of Mines had tabulated the June coal mine accident statistics and made public announcement. William W. Adams, who is in direct charge of this phase of the bureau's work, had arranged for securing and announcing the figures in regular newspaper fashion. The last report from the inspectors came by telegraph, and was itself dispatched as soon as the operators had turned in their figures. Calculation of summaries for the entire United States waited upon the receipt of this one message, but the work was all done within the space of one working day.

The report of the bureau showed that 155 men were killed at the coal mines in June, the record being 29 percent better than that of June last year. Equated to a production basis, the number of deaths per ton produced was 3.68, as compared with 4.22 a year ago. An interesting feature of the month was the non-occurrence of any fatalities from gas or coal dust explosions.

The fatality record for the first six months of 1921 is not so good as that of the corresponding period of 1920. During the first half of last year 1,093 were killed by accidents at the coal mines, and only 970 during the first six months of this year, but during the two periods 301,000,000 tons were produced last year as against only 242,000,000 this year. The fatality rate was 4.01 per million tons produced during the first half of 1921 as against only 3.63 per million tons during the parallel period of 1920.

ADDITIONAL TAX ASSESSMENTS—WHAT THEY ARE AND HOW TO MEET THEM

By MCK. W. KRIEGH

IN THE AUGUST NUMBER of the MINING CONGRESS JOURNAL the settlement of pending and impending additional assessments was characterized as the first task of the Income Tax Unit. Not only are these adjustments of first importance to the Revenue Bureau, but they are of vital consequence to the wasting industries, now

testified is involved. The business of the nation is paying the vast annual bill of \$4,000,000,000 required to finance the federal government and business is entitled to the best service and protection which those who are entrusted with the nation's affairs can give. The interference of partisan politics and private prejudices in dealing with this problem will not be countenanced by the taxpaying public.

Vast appropriations have been made for various other agencies created to expedite settlement of claims growing out of war contracts, war industries, government control of transportation, and government regulation of food supplies, and every one of these agencies has resulted in a large out-go from public funds. Why then does Congress hesitate to appropriate adequate funds for an agency which will increase the in-flow of revenue?

Something must be done to facilitate the final determination of tax liability and to remove the uncertainty which now prevails to the detriment of business.

Additional assessments are amounts found to be



—Morris, for George Matthew Adams Service.

NOW, THEN, ALL TOGETHER, THAT GOOD OLD SONG—E-con-o-mee!

laboring under multiplied difficulties, and to every business man in the nation. The fact that the final determination of tax liability has been delayed from two to four years in so many thousands of cases, and that the uncertainty resulting from this situation has impaired the credit standing of the individuals and corporations involved, has prevented improvement, expansion, and development, and has been one of the causes of the reduction to an absolute minimum of working forces employed, and that this condition of affairs has been an impelling reason for business depression, impeded progress and unemployment is universally recognized. This retarding and depressing influence must be removed by the settlement of these pending cases which originated mainly during the war period; and if, to accomplish this end, it is necessary for Congress to appropriate an additional \$5,000,000 or \$10,000,000 for agencies and adequately paid administrative forces needed to complete the audits, make valuations, hold hearings, and expedite assessments, that should be done at once, for such an appropriation is a mere pittance in comparison with the \$1,000,000,000 or more which competent authorities have



—From N. Y. Tribune.

WHEN CONGRESS RETURNS FROM ITS VACATION

due the federal government after return has been made, the amount shown to be due on the original return paid or liability therefor assumed, and government audit of the return, books, and records of the taxpayer discloses additional tax liability.

NATIONAL MANUFACTURERS APPROVE MINING CONGRESS TAX SUGGESTIONS

A FEDERAL TAX SETTLEMENT BOARD as suggested upon numerous occasions during the last six months by the Tax Division of the American Mining Congress was advocated during the last days of the tax hearings before the House Ways and Means Committee by James E. Emery, of Washington, D. C., representing the National Association of Manufacturers. Mr. Emery also advocated decentralization of tax administration by having the settlement board or other commission meet in various parts of the country to hear cases and render decisions which would be binding upon the government. The latter suggestion, while not definitely sponsored by the Mining Congress, has been put forward by the Tax Division as interesting and worthy of consideration.

"We believe," Mr. Emery said, "that one of the most practical things which this committee could do to facilitate administration of the tax laws would be to create what exists in every tax-levying country except this one, what is known as a board of income tax examiners, having duties similar to those of the war contract adjustment board, composed of tax experts, whose final judgment on behalf of the government settles the issue before them.

"I would be willing to go a step further. Today the

system is suffering from too high a centralization. If we could decentralize the board and have them sit at Portland, Me., and Fort Worth, Tex., in Washington or Oregon, and go from place to place, then the business man would not have to come to Washington in order to get a settlement of his taxes. Business men frequently pay taxes to which they object because they cannot afford the expense of coming to Washington and contesting with the government.

"It has been the practice of our courts to bring justice to the people rather than to compel the people to hunt justice. Thus, we have our district courts in every state, and it is only in appealed cases that litigants have to travel great distances to reach the courts. There is no reason why we cannot apply that system to the federal revenue administration.

"In Great Britain, where no man has to travel more than five hours to reach the capital, they have boards of inland revenue and assessors in every district. There is no reason why in a large country like ours men should not have an opportunity to adjust their claims against the federal government in their own state and without being compelled to come to Washington.

These assessments come to the notice of the taxpayer, first, in the form of a letter setting forth, oftentimes obscurely, alleged discrepancies in the return, and the basis used in determining the additional amount of tax claimed, and, second, in the form of a bill or notice to the taxpayer demanding payment of the amount alleged to be due within ten days from the date of mailing the notice to avoid penalties and interest. The so-called assessment letter reaches the taxpayer from one to four years after return is made, and the collector's bill arrives within approximately sixty days after the letter is received, unless, in the meantime, the taxpayer is able to submit evidence which will prove that the assessment is erroneous.

In many cases it has been possible for the taxpayer to show that the additional tax liability claimed is erroneous before issuance of notice by the collector, and in such instances the assessment is cancelled. In cases where the collector's bill has been received, payment must be made within ten days from the date such bill was mailed, or a claim for abatement must be filed within that period. If the claim for abatement is based upon reasonable grounds, and is sustained by proper affidavits of the taxpayer or of other parties cognizant of the facts, the collector may suspend collection of the additional tax claimed pending determination of the claim for abatement.

It is not the purpose of this article to deal primarily with the administrative methods of the Revenue Bureau, but rather to review the whole situation as it strikes the average taxpayer, and, if possible, to offer some suggestions which will be helpful both to him and to his servants employed in the government agencies in securing sympathetic co-operation instead of arbitrary results accomplished without that co-operation.

Not every taxpayer can be an authority on that comprehensive and technical volume known as "Regulations 45," sometimes termed "the revenue

agent's Bible." For that reason the average taxpayer who receives notice of an additional assessment usually experiences a tremor, not unlike the sensation felt by the motorist, fifty miles from a filling station, who finds his gasoline tank empty, or the business man who receives notice of an overdraft from his bank when he has no cash in his pocket, no accounts receivable, no dividends coming in, and no property in his wife's name. He has two alternatives, either to pay the assessment or prove that it is erroneous, and his slight knowledge of methods of procedure frequently raises doubt as to the advisability of the latter course.

The three most important questions usually involved in additional assessments against mining companies are invested capital, depletion, and depreciation; and invariably it is because the Revenue Bureau has reduced invested capital or the deductions for depletion and depreciation that additional tax liability is shown. Other deductions which may be reduced or disallowed by the Revenue Bureau on account of lack of supporting evidence or by reason of erroneous calculations are those claimed for losses, such as obsolescence, amortization and bad debts.

Immediately upon receipt of an assessment letter, steps should be taken to verify the government's computations. If they are correct and are based upon the facts, payment cannot be avoided. If they are in error or if the return and auditor's report upon which they are based do not reflect the true conditions, or if, as in many instances, they are arbitrary because of failure to submit complete schedules with the returns, upon application to the Commissioner of Internal Revenue, sufficient time may be secured within which to assemble data and prepare and file amended returns, together with the required schedules, which show the correct status of the business.

If invested capital has been reduced by the government, consideration must be given to the ele-

ments—cash or cash value actually paid in by the stockholders, including surplus and undivided profits—of which it is composed. It may be found that invested capital can be increased: (1) by claiming fair market value of mineral or other tangible properties conveyed by gift or at value, accurately ascertainable or definitely known at date of transfer, clearly and substantially in excess of the cash or the par value of stock or shares paid therefor, which excess may properly be deemed paid-in surplus, or (2) by segregating and restoring to capital accounts expenditures made prior to January 1, 1917, for organization, structures, equipment, plant, fixtures, construction, development, etc., which under former accounting methods may have been charged on the books as operating expense; (3) by ascertaining whether that part of invested capital representing the natural resources has been improperly reduced by the deduction therefrom of more than the depletion actually sustained, as in the case of mineral property valued as of March 1, 1913, where the depletion allowable as a deduction exceeds the depletion sustained; (4) by restoring amounts representing excessive depreciation charged off in prior years on property still owned and in use; and (5) by including amounts which have been expended in the past for intangible property of any kind where the corporation specifically paid such amounts for the intangible property as such. (See Articles 840-845, Regulations 45.)

If the deduction for depletion has been reduced, the assessment letter should be carefully checked for errors in computation. In the case of property acquired prior to March 1, 1913, if no error has been made, but the Revenue Department has set aside the valuation claimed as of March 1, 1913, and has used an arbitrary valuation as of that date, it will be necessary for the taxpayer to prove by competent evidence that the valuation shown in the return is based upon facts. This can be done by establishing the value which would have caused a transfer between a willing seller and a willing buyer as of that particular date. Affidavits as to cost, actual sales and transfer of similar properties, market value of stock or shares, royalties and rentals, value fixed for capital stock tax, valuation for state and local taxation, partnership accountings, records of litigation involving the property's value, disinterested appraisals by approved methods, bona fide offers to purchase, and other factors, will be given due consideration.

If the depreciation claimed has been disallowed as excessive, affidavits and other evidence tending to show that the amount claimed as a deduction was reasonable because of unusual circumstances and conditions which shortened the useful life of the property, may be filed in substantiation of the claim. The same is true of evidence submitted with respect to other losses claimed on account of obsolescence, amortization, bad debts, sale of capital assets, etc., which have been reduced or disallowed by the Revenue Bureau.

It will be realized that rules of procedure cannot be laid down to fit every situation which may arise, as each case may involve such variations in the facts presented that it must be decided upon its individual merits irrespective of precedent or conditions existing in other branches of the same industry. The main point to be remembered is that *the facts control*, and not necessarily records which may not clearly reflect the true taxable income. No attempt

has been made in this article to deal with technical phases of income tax procedure, but merely to suggest the idea that great dissatisfaction and injury grow out of the uncertainty which exists in the mind of the average mine operator from the moment return is made, and which continues to exist through a period of years, until final tax liability is determined or the statute of limitations has run, which is unfair and disastrous to the industry, and a situation which Congress has the power to correct; and that prompt determination of tax liability as well as closer co-operation on the part of the government agencies concerned is imperative if business is to resume a normal status. It is not intended to convey the impression that any taxpayer should risk prosecution by seeking to evade the payment of taxes rightfully assessed; but instead to reassure those who may be affected by additional assessments that their cases may not be as serious as the receipt of an assessment letter or collector's tax bill might imply, and to encourage the employment of every lawful agency or means for finally determining and verifying the tax liability before payment.

IDEAL ACCIDENT STATISTICS AIM OF MINES BUREAU

ONE NEW QUESTION which has been added to coal and metal mining questionnaires sent out annually by the U. S. Bureau of Mines will, if answered by the operators enable the bureau to publish practically ideal fatality and accident statistics. This question is, "How many hours constitute a shift?"

Accident statistics both for fatalities and injuries are tabulated upon the basis of 300,000 shifts, which is equivalent to the labor of 1,000 men for 300 days, or for one year. Such statistics, which have been issued by the Bureau of Mines for several years, are the most reliable obtainable, but, nevertheless, not as reliable as they ought to be, for the reason that workmen are always considered as doing a day's work when they report for duty, even though they may work only two or three hours; but if the operators all answer the question as to the number of hours in a shift it will be possible for the Bureau of Mines to equate all statistics upon the basis of 300 working days of the same length, which will probably be eight hours. Accident statistics calculated upon such a basis will approximate absolute accuracy as nearly as it is possible to do so.

The Bureau of Mines is also attempting to get accident reports from each individual mine in the country rather than from each mining company, which may conduct any number of operations.

Statistics of recent years, both for fatalities and injuries, are not exactly comparable to those of former years when workmen averaged nine to ten hours a day. All questionnaires upon which statistics for the year 1921 will be based have been printed, and all of them will carry the question of how many hours constitute a shift. All annual statistics will be calculated hereafter upon the basis of 300 working days of equal hours.

EIGHTY ENTRIES FOR INTERNATIONAL MINE RESCUE MEET

THE INTERNATIONAL First Aid and Mine Rescue Meet, to be held in the Coliseum, St. Louis, from September 1 to 3, inclusive, promises to be a notable event. Sixteen states and the Canadian province of British Columbia will be represented by first aid and mine rescue teams. Mining men of national repute will address the various meetings and the governments of Great Britain, Belgium and Canada will be represented by delegates. It is expected that President Harding will use this occasion to deliver a message to the million miners of the country on the need for safety in mining.

The contests will be held under auspices of the United States Bureau of Mines, the branch of the Federal Government which is particularly charged with the investigation into the causes of mine accidents and the promotion of safety and health in mining. Co-operating with the Federal Bureau will be the American Red Cross, the National Safety Council and miners' and operators' organizations and associations.

Sixty-four first aid teams have been entered in the contests for the international championships and sixteen mine rescue teams have forwarded their entry blanks to the Pittsburgh station of the Bureau. These teams represent the mining districts of New Mexico, Illinois, Pennsylvania, Maryland, Colorado, Virginia, Utah, Kentucky, Iowa, Oklahoma, Arkansas, West Virginia, Kansas, Alabama, Missouri and Wyoming. Depressed mining conditions in Mexico has made it impossible for the companies operating there to be represented. The Western Fuel Corporation of Canada, Ltd., has entered a first aid team.

The opening address will be made by H. Foster Bain, director of the Bureau of Mines, at a meeting to consider possible standardization and improvement of mine rescue methods. This meeting will be held at the Statler Hotel on the morning of September 1, with George S. Rice, chief mining engineer of the Bureau, as the presiding officer. J. W. Paul, chief of the Bureau's coal mine investigations, will read a paper on the "History of Development of Mine Rescue Apparatus," discussion of which will be opened by G. S. McCaa, mine safety engineer of the Bureau.

"The Need for Standardization in Mine Rescue Work," is the subject of a paper prepared by Hon. William Sloan, Minister of Mines, British Columbia. As illness will prevent Mr. Sloan's presence, this

paper will be read by Inspector Strachan of British Columbia, who has been designated to represent the province. Discussion on this paper will be opened by Daniel Harrington, district mining engineer of the Bureau. Robert M. Medill, director of the Illinois Department of Mines and Minerals, will deliver an address on "Mine Rescue Work from the Viewpoint of the State Inspector," with discussion opened by C. A. Allen, district mining engineer of the Bureau.

A. J. Moorshead, president of the Madison Coal Corporation of Chicago, will speak on "Mine Rescue Work from the Viewpoint of the Mine Operator." It is expected that Orr Woodburn, director of the Globe-Miami district Mine Rescue and First Aid Association, Globe, Ariz., will open the discussion on the operators' phase of the subject.

First aid contests will be held on the afternoons of September 1 and 2, with the mine rescue contests on the forenoon and afternoon of September 3.

The discussion of mine rescue methods will be continued on the evening of September 1, being opened by Dr. R. R. Sayers, chief surgeon of the Bureau of Mines, who will talk of "Physiological Investigations in Relation to Mine Rescue Work." Discussion on this subject will be opened by Dr. A. F. Knoefel, Terre Haute, Ind. D. J. Parker, chief of the division of Mine Rescue Cars and Stations of the Bureau, will read a paper on the "Mine Rescue Work of the United States Bureau of Mines," with a discussion to be opened by R. H. Lambie, chief of the Department of Mines of West Virginia. Mr. Harrington will read a paper prepared by H. J. Rahilly, mining engineer of the Anaconda Copper Mining

Company, on "Breathing Apparatus in Fire Fighting and Mine Recovery Work," and Mr. Allen will read a paper prepared by A. C. Watts, chief engineer of the Utah Fuel Company, Salt Lake City, on the same subject.

Diplomas and medals of honor of the Joseph A. Holmes Safety Association will be presented to twelve heroes of mine disasters, or their nearest relatives, as four of the awards are posthumous. The presentation will be made by H. Foster Bain, president of the Association, at its meeting in the Coliseum on the evening of September 2. G. W. Traer, of the Universal Coal Products Co., Chicago, will speak on "Joseph A. Holmes and Safety in Mining," detailing the work of the first director of the Federal Bureau of Mines, whose life was devoted to



F. J. BAILEY

Assistant to the Director of the Bureau of Mines, and official head of mine rescue and safety work in the United States. Mr. Bailey will personally direct the forthcoming international competitive exhibition.

obtaining better working conditions in the mines and more friendly and co-operative relations between operators and miners.

F. J. Bailey, assistant to the director of the Bureau of Mines, will speak on the proposed organization of local mine safety chapters of the Joseph A. Holmes Safety Association. J. W. Paul, chairman of the committee on awards of the association, will speak on "Diplomas and Medals of Honor of the Joseph A. Holmes Safety Association."

Awards will be made to six Butte miners for their rescue work during the fire at the Leonard mine of the Anaconda Copper Mining Company on February 28, 1917. These men are K. P. Krueger, Lew E. Ryan, Frank Pierce, Herbert Farlin, George Reichert and John Gregovich, all of Butte. Medals and diplomas will be presented to the nearest relatives of Francis Henry Murphy and William Ferrington, both of Franklin, Kansas, who lost their lives on November 2, 1918, in an effort to rescue two shot-firers who were imprisoned following an explosion in a mine. Medals and diplomas will be awarded, also, to Alex Ogilvie and Thomas Gold, of Lehigh, Okla., and the nearest relatives of Lasco Robinson and Clarence Williams, of Degnan, Okla., will receive the medals and diplomas awarded for endeavoring to warn miners of an impending explosion in the No. 19 mine of the M. K. & T. Co., the two men being killed, with eight others, when the explosion occurred before warning could be given.

Pries to the winning contestants will be awarded by Director H. Foster Bain as the closing event of the concluding banquet, to be held in the Coliseum on the evening of September 3. Four phases of the mine safety problem will be emphasized in a group of short talks. Governor A. M. Hyde, of Missouri, will speak on "The State's Interest in the Safety Movement"; J. G. Bradley, president of the National Coal Association, will speak on "What the Mine Operator Can Do For Safety and Health In and About the Mines"; John L. Lewis, president of the United Mine Workers of America, will speak on

"The Miners' Interest in the Safety Movement"; and Marion E. Rhodes, chairman of the House of Representatives Committee on Mines and Mining, will speak on "What the Federal Government Can

Do to Promote Safety in the Mining Industry."

Among the distinguished visitors at the meet will be Lieut. Col. J. A. S. Ritson, D. S. C., M. C., representing Great Britain, who rendered distinguished service during the late war. He has given considerable study to the use of rescue apparatus in military training. The Belgian government will be represented by E. Lemaire, director of the National Institute of Mines of Fremeries, at Erbisoeul. Mr. Lemaire holds the title of Chief Engineer of Mines. Representatives of foreign mining departments, state mine inspectors, safety engineers and representatives of mine rescue organizations, will participate in a discussion on the possible improvement and standardization of mine rescue methods. This discussion will be held on the morning of September 2, following a paper to be read by George S. Rice, chief mining engineer of the Bureau. It is expected that the conferences will be continued after the formal mine rescue and first aid contests are completed and the foreign representatives are to be given an opportunity of visiting the Pittsburg station of the Bureau of Mines, with its experimental mine at Bruce-ton, Pa.

Various manufacturers of safety devices related to mining will have exhibits at the meeting and the Bureau of Mines will have on display some of the devices which have been perfected in the federal laboratories.

Despite the present depression in the mining industry, the number of teams entered in the contests, the standing of the speakers who have accepted invitations to address the meetings, the enthusiasm on the part of the mining men of

the Mississippi Valley and the representation of the foreign mining men in the conferences cause the officials of the Bureau of Mines to feel that the St. Louis meet will be the most successful group of contests conducted under auspices of the Bureau.



D. J. PARKER

Chief of the Division of Mine Rescue Cars and Stations, Bureau of Mines, and member of the Executive Committee in charge of the St. Louis meet. Mr. Parker is seen adjusting protective equipment preparatory to entering a burning mine.

TEAMS ENTERED IN ST. LOUIS SAFETY TOURNAMENT

FIRST AID TEAMS—Lehigh Coal & Navigation Co., Lansford, Pa.; Inland Collieries Co., Indianapolis, Pa.; U. S. Fuel Company, Westville, Ill.; U. S. Fuel Company, Universal, Ind.; Central Coal & Coke Co., Bevier, Missouri; Pierce-Hess Coal Co., Bevier, Missouri; United Mine Workers of America, Local Union 1814, Denning, Ark.; Owl Creek Coal Co., Gebo, Wyoming; Knox County Operators' Association, Bicknell, Ind.; Superior Coal Co., Gillespie, Ill.; H. C. Frick Coke Co., Lambertson, Pa.; Rembrandt-Peale, St. Benedict, Pa.; O'Gara Coal Co., Harrisburg, Ill.; Stonega Coke & Coal Co., Big Stone Gap, Va.; Clinchfield Coal Corporation, Clinchco, Va.; Clinchfield Coal Corporation, Wilder, Va.; Big Creek Coal Co., Harrisburg, Ill.; District 11, United Mine Workers of America, Terre Haute, Ind.; Consolidation Coal Co., Jenkins, Ky.; Consolidation Coal Co., McRoberts, Ky.; Pana Coal Co., Pana, Ill.; Standard Oil Co., Carlinville, Ill.; Madison Coal Corporation, Cartersville, Ill.; The Consolidated Coal Co. of St. Louis, Herrin, Ill.; Madison Coal Corporation, Central City, Ky.; Nokomis Coal Co., Nokomis, Ill.; Local Union 517, United Mine Workers of America, Tovey, Ill.; La Salle County Carbon Coal Co., La Salle, Ill.; The New River Company, Scarboro, W. Va.; The New River Company, Mabscott, W. Va.; St. Louis Rocky Mountain & Pacific Coal Co., Raton, N. Mex.; Superior Coal Co., Gillespie, Ill.; Bertha Coal Co., Pittsburgh, Pa.; Miami Coal Company, Clinton, Ind.; Franklin Coal & Coke Co., Royaltown, Ill.; Colorado Fuel & Iron Co., Pueblo, Colo.; Dodds Coal Mining Co., Carrier Mills, Ill.; Blackwood Coal & Coke Co., Blackwood, Va.; Independent Coal & Coke Co., Salt Lake City, Utah; Tecumseh Coal Co., Bicknell, Ind.; Vigo Mining Co., Sullivan, Ind.; Crescent Coal Co., Evansville, Ind.; Pioneer Coal Co., Kettle Island, Ky.; Dewar Coal Mining Co., Dewar, Okla-

homa; Consolidated Coal Co., Buxton, Iowa; United Mine Workers of America, District 13; Saline County Coal Operators' Association, Harrisburg, Ill.; Scandia Coal Co., Madrid, Iowa; Rock Island Coal Mining Co., Alderson, Okla.; Central Coal & Coke Co., Huntington, Arkansas; Jackson Hill Coal & Coke Co., Local Union No. 2382, United Mine Workers of America, Shelburn, Indiana; Davis Coal & Coke Co., Thomas, W. Va.; Western Coal & Mining Company, Pittsburgh, Kansas; Woodward Iron Co., Dolomite, Ala.; De Bardeleben Coal Co., Sypsey, Ala.; United Mine Workers of America, District 13, Iowa Coal Operators' Association, Buxton, Iowa; United Mine Workers of America, District 13, Iowa Coal Operators' Association, Buxton, Iowa; Harrisburg Colliery Co., Harrisburg, Ill.; Saline Gas Coal Co., Harrisburg, Ill.; Springfield District Coal Mining Co., Springfield, Ill.; Western Fuel Corporation of Canada, Ltd., Nanaimo, British Columbia; Benton District Team, Benton, Ill.; J. K. Dering Coal Co., Clinton, Ind.; Harrisburg Coal Mining Co., Harrisburg, Ill.

MINE RECUE TEAMS—Inland Collieries Co., Indianapolis, Pa.; Owl Creek Coal Co., Gebo, Wyoming; Knox County Operators' Association, Bicknell, Ind.; H. C. Frick Coke Co., Leisenring, Pa.; Berwind-White Coal Mining Co., Windber, Pa.; Madison Coal Corporation, Cartersville, Ill.; The Consolidated Coal Co. of St. Louis, Herrin, Ill.; La Salle County Carbon Coal Co., La Salle, Ill.; The New River Co., McDonald, W. Va.; Pana Coal Co., Pana, Ill.; Franklin Coal & Coke Co., Royaltown, Ill.; Independent Coal & Coke Co., Salt Lake City, Utah; Tecumseh Coal Co., Bicknell, Ind.; Saline County Coal Operators' Association, Harrisburg, Ill.; Springfield District Coal Mining Co., Springfield, Ill.; Benton District Team, Benton, Ill.

ASSESSMENT WORK PERIOD CHANGED

BOTH HOUSE AND SENATE have passed the bill changing the period for doing annual assessment work. The President is expected to sign it immediately upon its receipt.

The bill does not change the period for doing assessment work from the calendar to the fiscal year. The new period in which work must be done expires at noon on July 1, or twelve hours after the beginning of the fiscal year. As finally enacted, the measure is believed to be satisfactory to the mining industry. The bill provides as follows:

"Provided that the period within which the work required to be done annually on all unpatented mineral claims located since May 10, 1872, including such claims in Alaska, shall commence at 12 o'clock noon on the first day of July succeeding the date of location of such claim; provided further that on all such valid existing claims the annual period ending December 31, 1921, shall continue to 12 o'clock noon, July 1, 1922."

Under this amendment the period in which 1921 assessment work must be performed will expire at noon on July 1, 1922. During the debate, Representative Mann, of Illinois, who joined with the opposition, asserted that the sole purpose of the measure was to gain an additional six months for the completion of 1921 assessment work. Members of the committee which considered the bill and also the author replied that the committee was forced to choose between curtailing the assessment period by six months or extending it six months, and that it chose the latter.

Representative Summers of Washington pointed out that the bill afforded the opportunity of doing

assessment work for two years by making one visit to the claim site in midsummer, by the simple process of completing the work for one year before noon on July 1, and starting the work for the next year immediately after July 1.

WAR MINERALS LEGISLATION STILL ON HOUSE CALENDAR

THE WAR MINERALS bill, which gives the Secretary of the Interior authority to consider claims which were actually mailed but not received in Washington prior to 12 o'clock noon, June 2, 1919, was still on the House calendar on August 20. Efforts to obtain a rule for its consideration were futile.

Considerable discussion has arisen as to whether this measure, if enacted into law, would give the Secretary of the Interior authority to make amended awards in war minerals cases, which were acted upon by the preceding administration, whose decision in many instances were unsatisfactory to the claimants. It is considered likely that, when the bill does come up for consideration before the whole House, an amendment will be offered which will give the Secretary of the Interior this authority beyond all question.

An interesting recent development in the war minerals situation was the decision of the Comptroller of the Treasury in the Samuel H. Dolbear case. The Comptroller denied the request of the Secretary of the Interior for a reconsideration of the case, on the ground that such permission would carry with it authority to reconsider all other cases heretofore acted upon.

THE SILVER SITUATION

(Courtesy of FEDERAL RESERVE BOARD)

FLUCTUATIONS in the price of silver are determined by a large number of circumstances, among which may be mentioned especially: (1) Quantity produced, of which about two-thirds originates in the United States and Mexico; (2) demand in the western world, i. e., in Europe and America, both for the arts and for coinage purposes; (3) demand in the Orient, i. e., in China and India, depending mainly on the balance of payments of these countries and on their general level of prosperity, but affected also over short periods of time by speculation; (4) the general price level, or in other words, the purchasing power of gold.

PRICE OF SILVER AND THE GENERAL PRICE LEVEL

Fluctuations in the price of silver, compared with fluctuations in the wholesale price index compiled by the Bureau of Labor Statistics, are shown in the table below, and in the chart on page 349. The price of silver is shown per fine ounce in actual monthly averages for the New York market and in percentages of the 1913 average of 61.241 cents.

PRICE OF SILVER AND WHOLESALE PRICE INDEX

	Average New York price of silver per fine ounce.	Per cent of 1913 average of \$0.61241.	Wholesale price index.
1918.			
November.....	\$1.01500	166	206
December.....	1.01587	166	206
1919.			
January.....	1.01558	166	203
February.....	1.01500	166	197
March.....	1.01495	166	201
April.....	1.01500	166	203
May.....	1.08020	176	207
June.....	1.11402	182	218
July.....	1.07332	175	207
August.....	1.12386	184	226
September.....	1.15636	189	220
October.....	1.20692	197	223
November.....	1.30446	213	230
December.....	1.33072	217	238
1920.			
January.....	1.33899	219	248
February.....	1.32965	217	249
March.....	1.27287	208	253
April.....	1.20576	197	265
May.....	1.03495	169	272
June.....	.92789	152	269
July.....	.92935	152	262
August.....	.96948	158	250
September.....	.94510	154	242
October.....	.84187	137	225
November.....	.78490	128	207
December.....	.65503	107	189
1921.			
January.....	.66388	108	178
February.....	.59813	98	167
March.....	.56726	93	162
April.....	.59830	98	154
May.....	.60310	98	151
June.....	.59125	97	148
July.....	.60798	99	148

There is a striking similarity between the wholesale price curve and the silver price curve. Silver, however, moved at a considerably lower level than general wholesale prices, touching its peak in January, 1920, at 219 per cent of the 1913 price, while the wholesale price index continued to rise until May of that year, when it reached 272 percent. Although the price of silver has declined rapidly since January, 1920, its downward course shows three distinct breaks, one in July, 1920, one in January, 1921, and the third in April. These breaks are independent of the wholesale price movement,

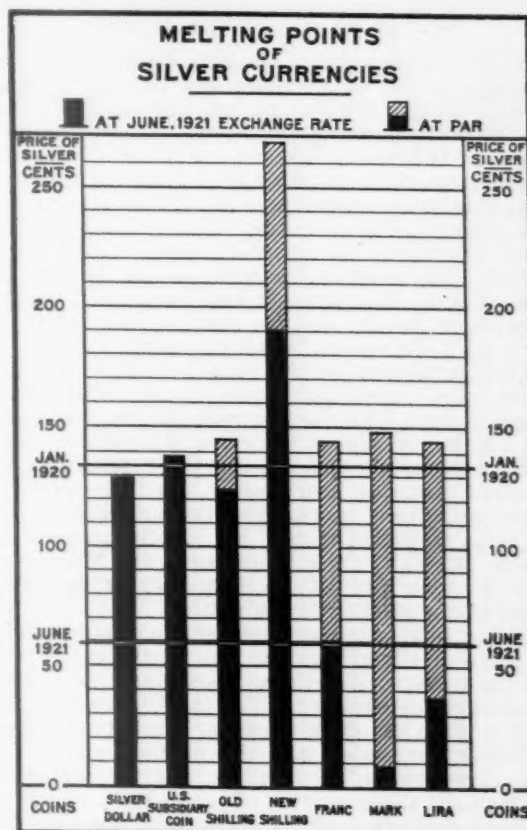
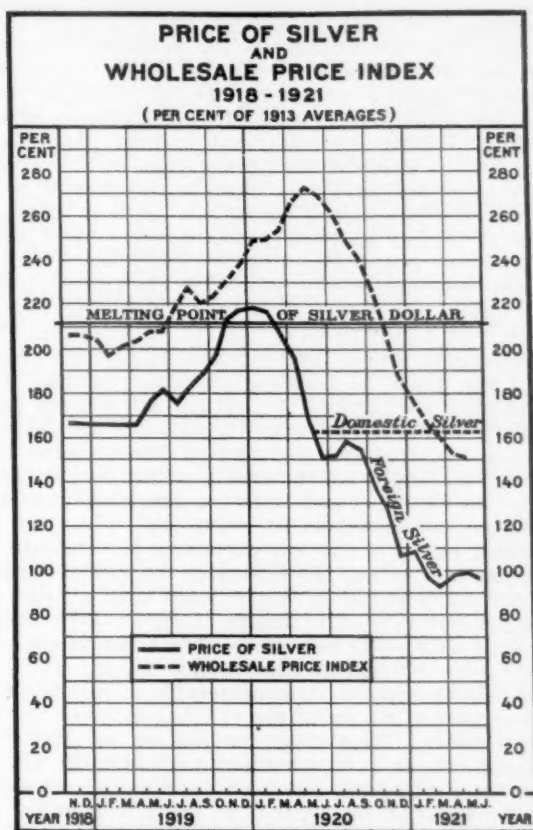
which shows an uninterrupted decline, while since March, 1921, the general trend of silver prices has been upward. The temporary increase in the price of silver in July, 1920, occurred when the United States Treasury began to purchase American silver at a fixed price of 99½ cents. These purchases were made under the terms of the Pittman Act,* which provided for the breaking up and sale of silver dollars and their repurchase when the price of silver should not exceed \$1 per ounce. The original sales amounted to 208,000,000 ounces. The Treasury proceeded to repurchase promptly as soon as the legal purchase price was reached. The act provided that the silver purchased should be of American origin and refined in the United States. The Treasury, however, placed a liberal interpretation on this clause to the effect that individual silver need not be identified so long as each producer should sell as American silver that portion of his silver product which corresponded to the silver mined and refined in this country. Total purchases of silver by the Treasury up to July 25, 1921, amounted to 63,600,000 ounces, or to almost one-third of the total amount sold. It is to be expected, therefore, that the government will continue to purchase silver for two or three more years. The entry of the United States into the silver market and the elimination from the world market of the American domestic silver supply has had a steadying influence on the price of silver. Soon after the purchases began a rise of the price of "foreign" silver occurred from about 93 cents in June, 1920, to 97 cents in August. After that other factors in the situation overcame the steadying influence of the Treasury purchases, so that silver continued to decline, though perhaps not so rapidly as would have been the case had the Treasury not been buying silver.

In spite of occasional discrepancies, the two curves clearly show that silver prices are to a very large extent affected by the same economic forces as prices of other goods or commodities. Rising prices of other commodities increase the cost of producing silver and, therefore, tend to raise its price. Furthermore, changes in the general purchasing power of gold affect the price of silver in the western world, where the demand for industrial purposes at times exceeds the government purchases for coinage.

PRODUCTION

From the table below it will be seen that the production of silver, which before the war totaled from 220,000,000 ounces to 226,000,000 ounces yearly, dropped to 211,000,000 ounces in 1914, 179,000,000 ounces in 1915, and 157,000,000 ounces in 1916. In this drop the chief factor was the decline of production in Mexico, which was caused not by the World War but by the unsettled political conditions prevailing in that country. Silver production increased in 1917 to 174,000,000 ounces, and in 1918 to 197,000,000 ounces, but declined again in 1919 to 175,000,000 ounces, and in 1920 to somewhat less than that amount. Production in the United States

*For text of this act, see *Federal Reserve Bulletin* for May, 1918, p. 395.



reached its maximum in 1916, and from that time has steadily declined. This decline is due chiefly to the fact that in the United States silver is produced from different sources approximately in the following proportions: Thirty percent from siliceous silver ores and placer operations; 30 percent from copper ores; 25 percent from lead ores; and 15 percent from complex ores, such as lead, zinc, and copper ores. Less, therefore, than one-third of the silver in the United States is produced as an independent operation, and more than two-thirds is incidental to the production of baser metals. Consequently, the prices of lead, zinc, and copper are important factors in the amount of silver produced in the United States, and the large declines in its production in 1918 and 1919, when the market for copper and lead was weak, are due primarily to this fact. In Canada production is declining, largely be-

cause the cobalt fields are being exhausted. Mexican production, which in 1916 had dropped to only 23,000,000 ounces, has since greatly increased because of the return of more normal conditions. In the last two years silver production on the whole has been on a level much below the prewar amount, but higher than in 1916. With conditions in Mexico more settled, there is no reason to expect a decline in her silver production. On the contrary, the amount in 1921 is likely, in spite of the prevailing lower level of prices, to be greater than in 1920, for the cost of production in Mexico has greatly decreased, so that silver can be marketed profitably even at the existing price. Production in the United States, which is assured a steady market at a dollar an ounce, is likely to remain constant at least for the next two or three years.

SILVER PRODUCTION OF THE WORLD BY PRINCIPAL COUNTRIES

(In fine ounces.)

Countries.	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920 ¹
United States	57,137,900	60,399,400	63,766,800	66,801,500	72,455,100	74,961,075	74,414,802	71,740,400	67,810,100	56,682,445	56,564,504
Canada	32,869,264	32,740,748	31,625,451	31,524,708	27,300,667	26,625,960	25,459,741	22,221,300	21,284,600	15,675,134	13,000,000
Mexico	71,372,194	79,032,440	74,640,300	70,703,828	70,703,828	39,570,151	22,838,385	35,000,000	62,517,000	62,681,987	63,636,100
South America	17,416,314	14,433,915	13,980,888	13,126,490	12,938,439	13,687,464	11,839,822	15,451,300	15,561,000	14,713,165	15,000,000
Europe	14,132,061	15,093,366	15,992,082	15,248,216	15,317,153	10,107,556	8,591,029	6,511,900	6,871,700	4,899,618	5,000,000
British India	44,772	104,323	93,949	.....	236,440	284,875	628,656	2,068,700	2,240,500	2,165,606	2,000,000
Australia	21,545,828	16,578,421	14,737,944	18,128,577	3,520,274	4,295,755	3,863,418	10,000,000	10,000,000	7,430,770	8,000,000
Japan	4,646,160	4,459,087	4,932,852	4,649,910	4,649,910	5,120,293	5,120,293	7,111,700	6,900,400	4,800,000	5,000,000
All other	3,694,869	2,751,223	4,540,688	3,724,614	3,981,564	4,197,371	3,870,375	4,082,500	4,509,600	5,468,689	5,000,000
Total	222,879,362	226,192,923	224,310,654	223,907,843	211,103,377	178,850,500	156,626,321	174,187,800	197,394,900	174,517,414	173,220,604

¹ Preliminary.

DEMAND IN EUROPE AND AMERICA

Silver consumption in the arts depends to a considerable extent on its price and on general prosperity. During the war period, and especially during the postwar boom, which was world wide in its scope, an increasing demand for silver in the arts was an element in its rising price. Among the principal industries consuming silver is the moving-picture industry which, because of its striking development, caused an increased demand in the silver market. The demand for silver to be used in the manufacture of ornaments and luxuries, however, experienced a sharp decline, when in June, 1920, the world-wide depression began to be felt.

More important in the recent history of silver prices were the developments in connection with silver coinage. At the outbreak of the war there was a large increase in the demand for silver coins, partly because the general disturbed condition encouraged people to hoard silver, partly because the higher price level necessitated the use of more silver coins as pocket money, but chiefly because the armies, especially those operating in the Near East, were drawing pay in silver and spending silver money of the smaller denominations.

A very interesting development took place when the price of silver began to rise at the same time that the currencies of the various countries became increasingly depreciated. The table below and the chart on page 349 show the silver contents of different silver currencies and the melting points for these currencies, i. e., the price of silver per ounce at which the silver content of the coins is worth as much as their face value. The total bars in the chart indicate how high the price of silver must be before the several currencies will reach the melting point, assuming that the value of these currencies remains at par. The black portions of these bars indicate the points at which the coins would be melted with exchange at the June, 1921, level.

MELTING POINTS OF SILVER CURRENCIES

Coin.	Fine silver content (grains).	Melting point (price of silver per oz.).		
		In local currency.	In U. S. money.	
			At par of exchange.	At June, 1921, rate of exchange.
Dollar	371.25	1.2929 dollars		
Subsidiary silver (dime)	34.722	1.3824 dollars		
Shilling:				
Old	80.7263	5.946 shillings	\$1.447	\$1.124
New	43.6364	11 shillings	2.677	2.08
5-franc piece	374.22	7.234 francs	1.396	.584
1-franc piece	64.4286	7.45 francs	1.438	.602
Mark	11.16	6.221 marks	1.482	.09
Lira	64.4286	7.45 lire	1.438	.371

It will be seen that with currencies at the June, 1921, level, silver dollars and subsidiary silver are far removed from the danger of the melting pot. The price chart shows, however, that for four months, November, 1919, to February, 1921, the price of silver was above the melting point of silver dollars, though below that of subsidiary silver. British silver is now also far below the melting point. At the January, 1920, price of silver, however, the old shilling was worth less than its silver content; this caused a change in the British coinage act by which the silver content of the shilling was reduced from 81 grains to 44 grains, or from a

fineness of 925 per thousand to one of 500 per thousand. The new shilling is far removed from any danger of melting either at par or at the present rate of sterling exchange. Other countries took similar measures to protect their silver coinage, notably Norway, Sweden, and Holland. In France the melting point of the 1-franc piece at the present rate of exchange is very close to the current price of silver, while that of the 5-franc piece is below, so that silver has practically ceased to circulate, some of it being hoarded and much of it sold. This situation has incidentally resulted in the virtual breaking up of the Latin Monetary Union, as France could not afford to have her francs smuggled into Switzerland, where their purchasing power was two or three times as great as at home. France has requested Switzerland to return all French subsidiary coinage, and recently also all the 5-franc pieces. To this end Switzerland has declared this money no longer lawful money within her boundaries. In Germany and Italy the depreciation of the national currencies is so great that silver, at its present price, is far too expensive to circulate in the existing coins. In Germany the silver content of the mark would be worth more than a mark at the present rate of exchange if silver were worth as little as 9 cents per ounce. The German government was obliged to demonetize silver, and the Reichsbank reports its considerable silver holdings not as part of its metal reserve, but included in "all other assets." This silver, amounting to about 30,000,000 ounces, is worth about 1,600,000,000 marks, and the Reichsbank has been reported as negotiating for loans on the security of this silver, or for its sale, as a means of paying some of its foreign obligations. In Italy the melting point of the lira is 37 cents per ounce.

The passing of the melting point for several of the important silver currencies brought from continental Europe into the London market a large supply of silver, which during 1920 is said to have approximated 50,000,000 ounces. Thus the total silver for sale in 1920, in spite of the production of only about 173,000,000 ounces, has been close to a record offering. Unquestionably this stream of silver to the London market from the vaults of central and other banks, as well as from the holdings of individuals, has been an important as well as a very unusual element in the silver situation during the past year.

INDIA

More important factors, however, in the silver situation than any of the developments in the western countries are changes in demand by the two great oriental silver using countries—India and China. On the next page is a table showing the gold and silver imports and exports, as well as the merchandise imports and exports of India, for the fiscal years ending March 31, 1914, to 1921.

It will be seen that the merchandise trade balance of India, which had always been favorable, increased decidedly during the war as the result of the great demand for supplies by the belligerents, and of the inability of European countries to export goods so long as their productive energies were entirely devoted to the war. For the year ending March 31, 1920, this favorable balance was nearly 1,200,000,000 rupees. During the year ending March 31, 1921, however, for the first time in a generation India reported an unfavorable trade bal-

ance, amounting to 791,000,000 rupees. This was due to the decrease in the purchasing power of the world during the depression and to the poor crops caused by an unsatisfactory monsoon in that year. In April and May, 1921, also, India reported unfavorable balances, though in May the unfavorable balance was only 20,000,000 rupees, compared with 111,000,000 rupees for the most unfavorable month (November, 1920), and 69,000,000 rupees, the monthly average since June, 1920.

It will be seen from the table that the excess of silver imports over exports into India was enormous during the war years, reaching its maximum in the fiscal year 1919, when 237,000,000 ounces were imported. A large part of this silver came from the United States in accordance with the provisions of the Pittman Act, which authorized the

The outstanding facts about India in connection with the study of silver in recent years are her insatiable demand for silver until the summer of 1919, followed by her almost complete withdrawal from the silver market during 1919-20.

CHINA

The other important factor is China. The table below shows that the Chinese trade balance, which is generally unfavorable, was much less so during the war years than before or since, owing to the same causes that influenced the Indian trade balance. In addition to this it will be noted that China was losing gold until 1916 and silver until 1918. The gold went largely to Japan and the silver largely to India.

By the middle of 1919 China found herself ex-

GOLD, SILVER, AND MERCHANDISE IMPORTS INTO AND EXPORTS FROM INDIA

Fiscal year ended Mar. 31.	(In thousands of standard ounces.)						(In thousands of rupees.)				
	Gold.				Silver.		Merchandise.				
	Imports.	Exports.	Excess imports.	Excess exports.	Imports.	Exports.	Excess imports.	Imports.	Exports.	Excess imports.	Excess exports.
1914	4,593	844	3,749	.....	79,835	8,728	71,107	1,832,479	2,488,788	.....	656,309
1915	1,705	527	1,178	.....	64,160	8,394	55,766	1,379,290	1,815,917	.....	436,627
1916	833	1,094	.....	261	39,833	6,901	32,932	1,319,862	1,925,343	.....	605,481
1917	2,283	18	2,265	.....	116,959	24,765	92,194	1,496,220	2,331,536	.....	835,316
1918 .....	.....	.....	.....	.....	88,814	14,283	74,531	1,498,850	2,222,651	.....	723,801
1919	390	1,346	.....	956	241,748	4,719	237,029	1,690,341	2,538,814	.....	848,473
1920	7,830	2,223	5,607	.....	101,052	4,110	96,942	2,079,724	3,267,931	.....	1,188,207
1921	3,728	2,907	821	.....	42,550	20,982	21,568	3,355,072	2,563,591	791,481	.....

United States Treasury to sell to the British government not to exceed 350,000,000 ounces of silver at \$1 an ounce. At that time the silver reserves of India were very low; the Indian population was restive, so that it was imperative for the government to obtain silver in order to convince the population that the rupee was convertible. In the summer of 1919 the Indian demand for silver ceased, and in the fiscal year 1920 only 97,000,000 ounces and in the fiscal year 1921 only 22,000,000 ounces of silver (net) were imported into India. During recent months, however, there has been a new movement of silver to India estimated at about 35,000,000 ounces for the first half of the present year. The reason for this is said to be the political unrest

tremely short of silver as a result of the war-time drain and of the hoarding due to the unsettled times, while the lack of confidence in bank notes also increased the demand for silver. Consequently, it was China that caused such an insistent demand for silver in 1919, heightened perhaps by speculators, as to drive the price to its peak in January, 1920. By that time her demand was fairly well satisfied; the trade balance, as may be seen from the table, became much more unfavorable, rising from 16,000,000 Haikwan taels to 221,000,000 Haikwan taels, and China was no longer in the market for silver. Recently hard times and famine conditions have resulted in considerable amounts of silver be-

GOLD, SILVER, AND MERCHANDISE IMPORTS INTO AND EXPORTS FROM CHINA

Calendar year ended Dec. 31.	(In thousands of haikwan taels.)										
	Gold.				Silver.				Merchandise.		
	Imports.	Exports.	Excess imports.	Excess exports.	Imports.	Exports.	Excess imports.	Excess exports.	Imports.	Exports.	Excess imports.
1913.....	3,065	4,451		1,386	55,711	19,743	35,968		570,163	403,306	166,857
1914.....	861	13,862		13,001	16,499	30,122		13,623	569,241	356,226	213,015
1915.....	819	18,211		17,392	20,718	39,100		18,382	454,476	418,861	35,615
1916.....	19,908	8,102	11,801		37,088	65,766		28,678	516,407	481,797	34,610
1917.....	13,872	5,025	8,847		27,507	48,490		20,983	549,519	462,932	86,587
1918.....	1,220	2,282		1,063	36,124	12,629	23,495		554,893	485,883	69,010
1919.....	51,079	9,897	41,182		62,094	8,969	53,125		646,998	630,809	16,189
1920.....	50,967	68,469		17,502	126,354	33,715	92,639		762,250	541,631	220,619

which generally results in the hoarding of hard cash by the Indian population. At present the political horizon seems to have cleared somewhat and the silver movement is expected soon to discontinue. On the other hand, gold has been sent from India to Japan and to the United States, as a result of the unfavorable exchange value of the rupee.

ing taken from buried hoards to be used in the purchase of food. It was this withdrawal of China from the silver market that precipitated the final drop in the price of silver, which in March, 1921, was worth about 57 cents an ounce compared with \$1.34 at the peak. Since that time the demand from India mentioned above has caused a slight reaction in the silver price.

NEARLY TWO BILLION DOLLARS INVESTED IN BITUMINOUS MINING

LARGE INCREASES in the number of enterprises and employes, in salaries, value of production and expenses of operation are shown in the U. S. Census Bureau's summary of the bituminous coal industry for 1919. The summary, which was issued last month, makes comparisons of conditions as they existed in 1909.

The summary covers mining of all kinds of coal except Pennsylvania anthracite. The word "enterprise" as used in the summary may mean more than one mine, provided they are operated by a single company and located in the same state or producing district. The number of mines reported is the number of individual mines or closely related groups of mines operated as a unit. The summary does not take into account the small coal mines producing for local consumption only which are situated all over the country.

The Census Bureau's summary follows:

BITUMINOUS COAL STATISTICS, 1909 TO 1919

	Producing enterprises		Percent
	1909	1919	increase
Number of enterprises	3,506	6,634	89.2
Number of mines	6,016	8,314	38.2
Persons engaged	534,814	583,155	9.0
Proprietors and firm members ..	3,739	4,237	13.3
Number performing manual labor in or about the mines ..	1,713	1,838	7.3
Salaries	19,159	33,562	75.2
Wage earners (average number) ..	511,916	545,356	6.5
Wage earners, Dec. 15, total	570,030	616,947	8.2
Above ground	94,173	108,685	15.4
Below ground	475,857	508,262	6.8
Power used (horse power)	1,228,026	2,154,517	75.4
Capital	\$1,062,411,843	\$1,909,652,355	79.2
Principal expenses:			
Salaries	21,811,710	68,644,930	214.7
Wages	294,344,241	681,937,911	131.7
Contract work	2,209,672	2,855,966	29.2
Supplies and materials	40,530,631	142,308,281	251.1
Fuel and power	7,513,894	37,155,089	394.5
Royalties and rents	12,093,442	22,242,440	63.9
Taxes	4,485,840	34,571,558	670.7
Products, total value	469,466,096	1,144,656,425	142.8
Coal—			
Quantity (tons, 2,000 pounds) ..	376,952,543	459,971,070	22.0
Value at mine	\$401,555,972	\$1,143,001,507	184.6

*Includes \$1,654,918, received for by-products work done, and power and miscellaneous materials sold.

COAL PRODUCTION CONTINUES TO SHOW DECLINE

THE OUTPUT OF BITUMINOUS showed an additional decline during the first week in August. The estimated total was 7,296,000 net tons, or 56,000 tons less than that of the last week in July. During the first week in August of 1918, production amounted to 12,130,000 tons and during the corresponding period of last year the total was 10,432,000 tons.

The daily rate of production at the beginning of August was less than that even of pre-war years, in some of which business depression was marked. This rate during the first week was 1,216,000 tons daily, which was only 76 percent of the August 1913 rate, 84 percent of the 1914 rate and 83 percent of the 1915 rate. The marked decrease as compared with 1914 and 1915 production becomes all the more significant when it is remembered that business was generally depressed during 1914 and 1915.

Production for the first 184 working days for

five years is shown (in tons) in the following table:

1917	327,477,000	1919	264,311,000
1918	347,635,000	1920	308,994,000
1921	233,977,000		

Upon these figures the U. S. Geological Survey makes the comment that "in point of production of soft coal the year 1921 is, in round numbers, 30,000,000 tons behind 1919, 75,000,000 tons behind 1920 and about 103,000,000 tons behind the average of the war years. Compared with the average of all four years, it is 78,000,000 tons behind."

Labor troubles were a factor in decreased anthracite production during the first week of August. Total output, including mine fuel and local sales, is estimated at 1,564,000 net tons, or 15 percent less than that of the week ending July 23, which was the last preceding week unaffected by labor disputes. Production of anthracite during July, and cumulative production for the first seven months, during the last nine years, are shown below:

ANTHRACITE PRODUCTION

Year	July Production (Net tons)	Cumulative Production to July 31 (Net tons)
1913	7,272,000	53,500,000
1914	7,165,000	50,900,000
1915	6,691,000	49,100,000
1916	7,062,000	50,500,000
1917*	8,684,000	57,300,000
1918*	9,134,000	59,200,000
1919	7,974,000	47,900,000
1920	8,247,000	52,400,000
1921	7,050,000	52,500,000

*Years of very large washery production.

ASIATIC COAL IMPORTED.—Reports of the first shipment of Manchurian coal to the United States have reached the Commerce Department. Consisting of 7,820 long tons of best screened coal, the shipment, made by Suzuki & Co., Kobe, Japan, was invoiced at over \$9.00 per long ton. It has been stated that the total quantity to be included in the shipment, purchased by a San Francisco coal company, will be 14,000 tons. The department's source of information states that it has not been found practicable to ascertain the total stock of coal available for purchase in Manchuria, though the amount is considerable.

ANTHRACITE SHIPMENTS.—Shipments of anthracite in July, as reported by the Anthracite Bureau of Information, aggregated 5,462,760 gross tons as compared with 6,031,937 tons in June and with 6,389,100 tons in July, 1920. The decrease was attributed to continued slack demand for pea and steam sizes, which necessitated closing down many individual operations, and to strikes affecting chiefly the Lehigh and Wyoming regions.

GREAT EXPANSION IN ALL LINES OF OIL AND GAS BUSINESS

GROWTH ALONG ALL LINES characterized the petroleum and natural gas industry in the United States during the ten-year period ending in 1919, as shown by the U. S. Census Bureau. The report summarizes conditions in 1919 and makes comparison with 1909. It shows among other things that during the decade considered the number of productive wells increased more than 50 percent, the number of persons employed was more than doubled and that the number of wage earners increased 150 percent, and capital invested more than 250 percent. The output of petroleum and natural gas was more than doubled and both operating expenses and value of production increased five-fold.

The Census Bureau's summary is shown below.

PETROLEUM AND NATURAL GAS SUMMARY, 1909-1919

	Producing enterprises 1909	1919	Percent increase or decrease
Number of enterprises.....	7,793	9,814	25.9
Number of petroleum and natural- gas wells.....	166,320	260,673	56.7
Number of natural-gas-gasoline plants.....	(2)	1,118	...
Persons engaged.....	59,085	125,077	111.7
Proprietors and firm members.....	16,213	14,223	-12.3
Number performing manual labor.....	2,155	1,989	-7.7
Salaried employees.....	6,128	17,649	188.0
Wage earners (average number).....	36,744	93,205	153.7
Power used (horse power).....	1,221,969	1,821,367	49.1
Capital.....	\$683,268,497	\$2,421,485,942	254.4
Principal expenses—			
Salaries.....	7,241,881	33,468,368	362.2
Wages.....	27,091,650	134,520,747	396.5
Contract work.....	16,736,510	68,663,659	310.3
Supplies and materials.....	49,835,890	223,872,364	349.2
Fuel and power.....	1,444,595	20,767,040	1337.6
Royalties and rents.....	21,282,820	106,458,518	400.2
Taxes.....	2,576,986	38,690,629	1401.4
Products, total value.....	185,416,684	1,001,316,060	440.2
Petroleum—			
Barrels (42 gals.).....	171,559,394	360,016,400	109.8
Value at well.....	\$117,696,527	\$694,107,577	489.7
Natural gas—			
M. cu. ft.	559,800,490	1,276,152,627	118.2
Value at well.....	\$67,605,397	\$155,847,905	130.5
Natural-gas gasoline—			
Gallons.....	(*)	453,949,852	.....
Value at plant.....	(*)	78,752,824	.....

A minus sign (—) denotes decrease.

*Not available.

†Includes gas purchased for use as material and for resale.

‡Includes value of minor products and amount received for work done and power sold.

GASOLINE QUALITY HIGHER DESPITE PRICE INCREASES

BETTER GASOLINE is being sold this summer than was distributed last summer, despite lower prices. This fact has been ascertained by the U. S. Bureau of Mines, which conducts semi-annual surveys of motor gasoline sold throughout the country.

Samples of gasoline collected in New York and Pittsburgh have shown almost without exception that motor fluid is more volatile than that sold in the same cities a year ago. The same situation was found to be true in Washington, D. C. The average boiling point of gasoline sold in New York this year has been found to be 268, or 4 less than last year, and that of Pittsburgh 259, or 16 less than last year. The fourth semi-annual gasoline survey covering all of the large cities of the United States is now nearing completion, and reports will be issued within a few weeks.

ARKANSAS "ARRIVES" AS PETROLEUM PRODUCING STATE

NO TIME WAS LOST by the State of Arkansas in taking high rank as an oil producer. Within four months after it began to be recognized as a regular producer it gained seventh rank among the states. Official statistics for June, compiled by the U. S. Geological Survey, gave the state a higher rating than Illinois and one next to Wyoming.

Production by states was as follows:

PETROLEUM PRODUCTION, JUNE, 1921

	Barrels		Barrels
California.....	10,120,000	Ohio.....	654,000
Oklahoma.....	9,736,000	West Virginia....	633,000
Texas.....	8,296,000	Pennsylvania.....	615,000
Kansas.....	3,480,000	Montana.....	114,000
Louisiana.....	2,277,000	Indiana.....	105,000
Wyoming.....	1,857,000	New York.....	78,000
Arkansas.....	880,000	Colorado.....	9,000
Illinois.....	815,000	Tennessee.....	1,000
Kentucky.....	735,000		
Total.....	40,405,000		

The first decrease in production since January was reported in June, the daily average output being 9,373 barrels less than that of May. Although the month's production was 3,000,000 barrels greater than that of June, 1920, its value was only \$52,900,000, or considerably less than half that of June, 1920, which aggregated \$116,200,000.

Production during the first half of 1921 totalled 236,675,000 barrels, or at the rate of 473,000,000 barrels per year, as compared with an output of 211,360,000 during the first half of 1921. Comparative statistics for the first six months of 1920 and 1921 follow:

PETROLEUM STATISTICS, FIRST SIX MONTHS

	1920	1921
Production.....	211,360,000	236,675,000
Imports.....	39,009,000	66,276,000
Withdrawn from storage.....	868,000	
Total.....	251,237,000	302,951,000
Consumption.....	247,222,000	259,721,000
Exports.....	4,015,000	4,427,000
Added to stocks.....		38,803,000
Total.....	251,237,000	302,951,000

GASOLINE ACCUMULATION ARRESTED

REFINERY STOCKS of gasoline, which on May 31 were the largest on record, were reduced during the month of June by 47,827,771 gallons. Stocks at the end of May amounted to 800,495,787 gallons; at the end of June to 752,668,016 gallons. California, with an increase of 5,752,429 gallons, and Colorado-Wyoming, with 2,042,999, were the only divisions reporting an increase in stocks during the month. The largest decreases were in Texas-Louisiana, 20,360,768 gallons, and Indiana-Illinois, 18,223,271 gallons.

OIL SHALE RESOURCES CONSTITUTE TREMENDOUS RESERVE

IF THE AMERICAN petroleum supply ever falls short of the domestic demand, and foreign oils cannot be obtained in sufficient quantities at reasonable prices, we can depend upon our oil shales to meet the emergency. This is the studied conclusion of the United States Bureau of Mines.

An analysis of the oil shale situation, particularly from the economic angle, has been made by M. J. Gavin, H. H. Hill and W. E. Perdew, of the Bureau of Mines. They give special consideration to the western states, where shale beds are thickest and richest. They agree with prior findings of the Geological Survey that these states contain enormous quantities of shales which can be made to yield hydrocarbon oils to a much greater extent than we can hope to obtain from our oil wells, and that the shales thus constitute a tremendous potential reserve.

It is estimated by the U. S. Geological Survey that the curve of crude oil production will reach its peak within a few years, and then the country will have to look more and more to other sources for its hydrocarbon oils.

MINES TO BENEFIT FROM BEAR RIVER DEVELOPMENT

ADDITIONAL POWER for mining purposes will be provided by the development of the Utah Power and Light Company on Bear River in Southeastern Idaho, a preliminary permit for which has been issued by the Federal Power Commission. The project will impound water for both irrigation and power, and will complete the utilization of the Bear River for power purposes at all practicable points from Bear Lake to Great Salt Lake. The development will make the river one of the most completely utilized streams for power and irrigation purposes in the west.

The completed project will add 21,500 horsepower of hydroelectric energy to the generating capacity of the company's system, now capable of developing about 165,000 horsepower, and will be connected with the big main transmission system now operating at 130,000 volts, extending from Grace plant, in Idaho, to Salt Lake City, a distance of 134 miles, and supplying a population of 300,000 with power, much of which is used in mining and manufacturing. This additional development will give added reliability in power supply and will serve to steady some of the company's smaller plants located on other streams having variable flow.

MINTS SPEED UP SILVER OUTPUT

PRODUCTION of silver dollars by the Philadelphia mint during August was expected to be at a greater rate than during the month of July. During both June and July, production slowed down considerably, from the record of 200,000 per day in May, but during the first week of last month the previous record was regained. The July output was 2,450,000 pieces. On the first of July about 15,000,000 silver dollars were stored in the Philadelphia mint vaults.

FUEL ECONOMIES TO FOLLOW FROM CERAMIC STUDIES

DEVELOPMENTS of interest to fuel consumers and producers alike are expected to result from investigations now under way at the Bureau of Mines' ceramic station at Columbus, Ohio. Studies are to be carried further than ever before in the relation of fuel to the ceramic industry and experts of the coal division of the Bureau are to be called into the investigations for the purpose of adding their knowledge to that of the station's ceramic chemists. While the information on fuel conservation that will be obtained will be directly applied to the ceramic industry it is expected that it will be applicable in a much larger field. The studies will not be confined to coal conservation but will also include means of effecting economies in the use of fuel oil and gas, the other fuels used in commercial ceramics.

Under the co-operative agreement between the ceramic industry, an extensive investigation will be made of various types of kilns now in use. Several plants will be visited and the data obtained will be used as a basis for laboratory practice at the Columbus station. Members of the industry have been evidencing keen interest and a large number of requests have already reached the Bureau proposing investigation of plants and their systems. Ceramic operators have already agreed to make any changes in their plants that may be suggested by the Bureau as a result of its work.

In addition to the activities that will be devoted to securing economies in fuel consumption, the Bureau's chemists will soon enter into an exhaustive series of experiments having as their aims the discovery of various combinations of elements for the purpose of securing distinctive and new results in the production of ceramic material. Much the same methods of research will be used as those which guided chemists of the glass industry in obtaining highly desired glazes and other objects.

PROTECTING MINE TIMBERS FROM DECAY

CO-OPERATION between the Bureau of Mines and the Forest Products Division of the Department of Agriculture on investigations for improving protection of mine timbers from decay has reached the point where the bulk of the field work has been concluded. The task of preparing reports will soon be initiated. R. R. Horner, the Bureau's engineer who has been working with representatives of the Department of Agriculture, has returned to Washington, following a long tour through the western mining districts, and is at work on the data which he collected. The depression which has beset the mining industry has forced the necessity of preservation of mine timbers before the attention of operators. Producers are showing high interest in the government's investigations at this time in connection with their efforts to minimize overhead expenses involved in keeping their mines in condition until such time as the economic situation shall enable them to re-open their properties for production. Experiments are being carried on at the Agricultural Department's Wood Products Laboratory, Madison, Wisconsin, and the Bureau of Mines is completing the task by adapting the findings to mining conditions.



THREE FRAMERS OF 1921 TAX PROGRAM

Left to right—Congressman Charles B. Timberlake, of Colorado, member of Ways and Means Committee; Congressman Martin B. Madden, of Illinois, chairman of Appropriations Committee, and Thomas A. Chandler, of Oklahoma, member of Ways and Means Committee. They took an important part in the conferences in which the Administration tax program was developed.

ANALYSIS OF THE REVENUE BILL OF 1921

THE NEW TAX REVISION BILL amending the Revenue Act of 1918, and known as the Revenue Act of 1921, was introduced in the House of Representatives on August 15 by Chairman Fordney of the Ways and Means Committee. The bill was passed by the House on August 20 and referred to the Senate, and is now being considered by the Senate Finance Committee. It will be taken up by the Senate after the recess, and may be amended in many respects before its final passage. The revenue Act of 1918 will remain in effect except such provisions as are changed by the new act when it is signed by President Harding. The following is a summary by sections of the provisions of the bill as it passed the House:

201. Foreign traders and foreign trade corporations, as defined will be taxed substantially as non-residents, i. e., only on income derived from sources within the United States. (See Secs. 212, 223.)

202. Dividends: Stock dividends are specifically exempted from taxation in accordance with the decision of the Supreme Court in *Eisner v. Macomber* (252 U. S., 189), but "a distribution made by a corporation to its shareholders shall be included in the gross income of the distributees as for the date when the cash or other property is unqualifiedly made subject to their demands."

203. Basis for determining gain or loss:

Gifts: If a gift is disposed of by the donee the basis is the same as it would have been in the hands of the last preceding owner by whom the property was not acquired by gift.

Other property: The general basis in the case of a sale or other disposition

of property shall be the cost of such property; but in the case of property acquired prior to March 1, 1913 (if its fair market value as of that date is in excess of cost; the gain is the excess of the price received over such fair market value; (2) if such fair market value is lower than cost, the loss is the excess of such fair market value over the amount received; and (if the price received is more than cost but less such fair market value, or less than cost but more than such fair market value, no gain or loss is recognized. This is the same rule approved by the Supreme Court in *Merchants' Loan & Trust Co. v. Smietanka* (decided March 28, 1921).

Exchanges: Where property is exchanged for other property there is no gain or loss unless the property received in exchange has a readily realizable market value; but there is no gain or loss even then (1) if the property given was held for investment or productive use, and that received was of a like kind or for a like use; (2) when in an organization or reorganization of a corporation, new stock or securities are received for property owned; (3) when a person or group transfer property to a corporation and immediately thereafter are in control of such corporation, such control being defined as the ownership of 80 percent of the voting and all other classes of stock.

Deductions for losses, such as depreciation, depletion, obsolescence, are on the same basis as that used for determining gain or loss.

204. Net losses: A net loss for a taxable year beginning after December 31, 1920, is deductible from the income of the first succeeding taxable year, and any balance of such net loss is deductible from the income of the second succeed-

ing year. This provision is similar to the existing law applicable to net losses for 1919.

205. Fiscal year basis: If a taxpayer makes return for a fiscal year beginning in 1920 and ending in 1921, 1920 rates will apply to 1920 portion and 1921 rates to 1921 portion of the period.

206. Capital gain and capital loss: Where the sum of the net gain derived from the sale or other disposition of capital assets and ordinary net income together exceed \$29,000, the normal rates of tax shall apply to the ordinary net income and the total tax shall be this amount plus 12½ percent of the capital net gain or minus 12½ percent of the capital net loss, in the case of a loss. Ordinary net income is the net income after excluding all items of capital gain, capital loss and capital deductions.

207. Surtax: The maximum rate of surtax upon the amount which the net income exceeds \$66,000 for the calendar year 1922, and thereafter, shall be 32 percent.

208. Gross income: Includes gains, profits, and income derived from salaries, wages, compensation, interest, rents, dividends, securities, or from any source whatever. Income received by any community shall be included in the gross income of the spouse having the management and control of the community property.

209. Exempt income: The proceeds of life insurance policies paid upon the death of the insured.

210. Tax-free securities: Requirement that every taxpayer must make a return of his tax-free securities and interest received therefrom is repealed.

211. Exempt income: New exemptions are (1) earnings of a non-resident

alien or foreign corporation derived from the operation of ships documented under the laws of a foreign country which grants an equivalent exemption to citizens of the United States and to domestic corporations; (2) allotments and allowances or compensation received under the War Risk or Vocational Rehabilitation Acts; (3) compensation of the President and Federal judges; (4) interest or dividends received from domestic building and loan associations, operated exclusively for the purpose of making loans to members, not exceeding \$500.

212. **Non-residents:** In the case of a non-resident alien individual or foreign trader, gross income means only gross income from sources within the United States.

213. **Miscellaneous deductions:** (1) Traveling expenses, including expenses for meals and lodging while away from home on business; (2) all interest on indebtedness except on indebtedness incurred or continued to hold tax-securities; (3) taxes, except federal income, war-profits, or excess-profits taxes, and taxes assessed against certain local benefits.

214. **Deductions for losses and bad debts:** No deduction shall be allowed for losses sustained in the sale of securities where the taxpayer at or about the same time acquires identical property. The Commissioner is authorized to permit a deduction for bad debts recoverable only in part, or in his discretion to recognize a reserve for bad debts.

215. Slight substitution of words.

216. **Deductions for contributions and gifts:** Extended, under certain restrictions, to include a community chest, fund, or foundation.

217. **Deduction in case of involuntary conversion:** Gain resulting from involuntary conversion of property into cash as a result of fire, shipwreck, condemnation or related causes, is deductible, when taxpayer immediately proceeds to replace to invest the proceeds of such conversion in the acquisition of similar property or replacement fund.

218. **Deductions in the case of non-resident aliens and foreign traders** allowed only to extent that they are connected with income from sources within the United States; and proper apportionment and allocation of deductions shall be determined under rules prescribed by the Commissioner.

219. No deduction is allowable for shrinkage in a terminable interest in property acquired by gift, bequest, devise, or inheritance, due to lapse of time, or for items not allowable under state laws in computing net income on an estate or trust.

220. **Corporation exemption:** The amount of dividends included in the gross income.

221. **Personal exemptions:** Single persons, \$1,000; married persons or heads of families \$2,500, where the net income does not exceed \$5,000, in which case the exemption is \$2,000; and \$400 credit for each dependent; non-resident alien individuals \$1,000.

222. **Credits:** Determined by status of taxpayer on last day of the taxable year, except in case of death, such credits shall be determined by status at time of death.

223. **Non-resident alien individuals and foreign traders:** Sources of gross income, interest, dividends, compensation for services, rentals and royalties, and income from natural resources or sale of

real or personal property—within or without the United States, are explicitly allocated.

224. **Personal service corporations:** This classification is repealed and such corporations are made subject to the normal corporation tax (see sections 233 and 1008). Rule for computing tax where such corporation has a fiscal year basis beginning in 1921 and ending 1922 specified.

225. **Income of estates or trusts:** Amendment follows construction of existing law given uniformly by the Treasury Department.

226. **Corporations formed to evade surtax** upon its stockholders required to pay a flat additional income tax of 25 percent; but stockholders may agree to be taxed upon their distributive shares in lieu of all income taxes upon the corporation.

227. Administrative changes in the withholding provisions of existing law.

228. **Credit for foreign taxes:** In no case shall the amount of credit allowed for any income or profits taxes paid to any foreign country exceed the same proportion of the domestic tax which the taxpayer's net income from sources within the United States bear to his entire net income.

229. Such credits allowed only if taxpayer furnishes satisfactory evidence showing the amount of income derived from sources without the United States.

230. Credit for foreign taxes in the case of fiscal year returns shall be determined under the provisions of this act.

231. **Returns of individuals:** Every single individual whose net income is \$1,000 or over, every married individual whose net income is \$2,000 or over, shall make return. A husband and wife may make a single joint return and have the tax computed on the combined income.

232. In the case of a return for a period of less than one year the net income shall be placed on an annual basis and the surtax computed according to the number of months in such period.

233. **Corporation income tax:** The rate of income tax for 1922 and thereafter is increased from 10 to 12½ percent.

234. **Fraternal societies and building and loan associations:** Provision that fraternal societies operating under the lodge system to be exempt must also

provide for payment of life or other benefits is repealed. Exemption to domestic building and loan associations is limited to those operated exclusively for the purpose of making loans to members.

235-236. **Exempt corporations, etc.:** Those operated for religious, scientific, etc., where no part of the net income inures to the benefit of any private individual, and associations organized and operated as sales or purchasing agents for members, and turning back proceeds or purchases, less necessary expenses.

237. Classification "personal service corporations" under organizations exempt from tax is repealed.

238. **Corporation gross income** is computed in substantially the same manner as that of individuals (see sections 213 and 217 for changes in existing law).

239-244. **Deductions of corporations** are amended along similar lines to the amendments relating to the deductions of individuals. (See sections 213 to 218 inclusive). Sections 241 and 242 amend provisions relating to deductions of insurance companies.

245. **Payment of tax at source:** In case of foreign corporations the rate is changed to 12½ percent.

246-247. **Credits of corporations:** Credit for foreign taxes similar to the provision for individuals (see sections 228 and 229).

248. **Consolidated returns:** Made optional with corporations concerned, except that when election is made it must be adhered to thereafter unless permission to change basis is granted.

249. The commissioner is given power to consolidate the accounts of two or more related trades or businesses for the purpose of making an accurate apportionment of gains, profits, income, deductions, or capital.

250. **Life insurance companies** are to be taxed at the normal corporation rate on the basis of investment income from interest, dividends, and rents, less the lawful deductions.

251-254. **Assessment and appeal:** Rate of interest on delinquent taxes fixed at 6 percent per annum instead of 1 percent per month. Assessment of tax must be made within three years after a return is filed under this act, and within five years under prior acts. No suit

SUMMARY OF TAX CHANGES

Following is a recapitulation of the principal changes in rates contained in the new bill, with estimated annual gains and losses such changes will occasion. (Rates not fully in force until calendar year 1923.)

	Loss	Gain
Repeal of excess profits.....	\$450,000,000	
Increase of corporation income tax to 12½ percent*.....		\$138,750,000
Reduction of surtax rates to 32 percent maximum*.....	90,000,000	
Increased exemption of heads of families to 2,500 for income not in excess of \$5,000.....	40,000,000	
Additional exemption for dependents increased to \$400 each.....	30,000,000	
Repeal of transportation taxes*.....	262,000,000	
Repeal of taxes on life insurance.....	6,300,000	
Repeal of taxes on Fire, Marine and Inland insurance.....	6,860,000	
Repeal of tax on beverages.....	60,000,000	
Tax of 4 cents on cereal beverages.....		18,000,000
Tax of 5 cents on carbonic acid gas.....		2,000,000
Tax of 2 cents a gallon on fruit juices of soft drinks.....		
Tax of 3 cents a gallon on still drinks (not mineral water or table water)		12,000,000
Tax of 10 cents a gallon on fountain syrups.....		
Repeal of tax on proprietary medicines.....		
Repeal of tax on goods.....	2,500,000	
Repeal of tax on toilet soaps and powder.....	2,200,000	
Repeal of tax on motor boats, yachts, etc.....	100,000	
Reduction of tax on candy to 3 percent.....	8,000,000	
Repeal of tax on electric fans.....	280,000	
Reduction of tax on fur articles to 5 percent.....	4,510,000	
Repeal of tax on so-called luxuries, clothing, etc.....	15,000,000	
Repeal of tax on proprietary medicines.....	6,000,000	
Total.....		\$988,750,000
Net loss.....	818,000,000	

*Effective January 1, 1922.

shall be brought for collection of any tax due after five years from the date return is filed. Taxpayer is given thirty days from date of notice of a deficiency in tax to file an appeal, and amount then determined to be due shall be assessed and unpaid, and no claim for abatement in such a case shall be entertained. The commissioner may waive certain requirements in the case of a citizen about to depart from the United States.

255. Refunds: An excess payment of income tax under the Act of 1917, where the invested capital of a taxpayer is decreased by the commissioner on account of failure of the taxpayer to take adequate deductions in previous years, shall be credited or refunded without the filing of a claim therefor.

301. Excess profits tax: Repealed as of January 1, 1922.

401-404. Estate tax: Provisions relating to the interest in property held jointly or as tenants is entirely by the decedent and any other person clarified and liberalized. Where a deduction is made for property which has been subject to the tax within five years, the value placed on such property in determining the value of the gross estate of the prior decedent, and not the value at date of death of the last decedent, shall be the basis for such deduction. Provisions relating to non-residents and foreign missionaries are modified. It is also provided that an executor, by filing a written application, may obtain discharge from personal liability for any estate tax not assessed within one year from date of application for determination of such tax.

501. Transportation tax on freight, passenger and express traffic repealed as of January 1, 1922.

Provision made for refund of taxes on unused portions of tickets or mileage books.

601-604. Beverage tax amendments: The 10 percent manufacturer's tax on carbonated beverages and the 15 percent tax on cereal beverages is repealed, and taxes of 5 cents per pound on carbonic acid gas, and 10 cents per gallon on sirups, 2 cents per gallon on fruit juices, 3 cents per gallon on still drinks, and 4 cents per gallon on cereal beverages, are proposed.

701-705. Admissions and dues: Provision of existing law relating to admissions free or at reduced rates is repealed. Exemption from tax is made in the case of admissions to benefit performances and exhibitions and fairs conducted exclusively for the benefit of needy persons formerly in the military or naval service, and admissions to agricultural fairs, under certain restrictions.

801-813. Excise tax amendments. (See summary.)

901. Capital stock tax: Time within which assessment of tax can be made limited to 15 months. Credit or refund of excess payments allowed.

1001-1005. Miscellaneous administrative provisions: An agreement between the commissioner and a taxpayer fixing final tax liability, is provided for. A reversal of any treasury decision by a subsequent decision, unless occasioned by a court decision, may be applied without retroactive effect. No taxpayer shall be subjected to unnecessary examinations or investigations. Authority is given for the creation of a "tax simplification board" to bring about a simpli-

fication of the forms and procedure used by the revenue bureau.

1006. Preferred claim: Debts due the United States shall be preferred claims in the case of insolvency, receivership, or bankruptcy.

1007. Consolidated returns: Taxes, under revenue act of 1917, in the case of partnerships or corporations affiliated during 1917, imposed on basis of consolidated returns of net income and invested capital.

1008. Personal service corporations. If the Supreme Court decides that such corporations cannot be taxed as partnerships under the revenue act of 1918, the tax then assessable for the years 1918, 1919 and 1920 will be a tax equal to the taxes imposed on regular corporations for those years. Credit against the tax due from the corporation for taxes paid by any shareholder must be applied for in writing within 90 days from date of such court decision. Provision is made for credit or refund where the aggregate tax paid is greater than the corporation tax would have been.

1009. Liberty Bond act amended so as to increase the aggregate amount of Victory Liberty notes from \$7,000,000,000 to \$7,500,000,000.

1010. Liberty Bond exemptions: Provision is made for a blanket exemption from surtaxes and profit taxes of an aggregate principal amount of \$125,000 of 4's or 4½'s for first two years after the termination of war with Germany, and of \$50,000 for three years more.

1011. Act of 1918 as in force prior to passage of this act will apply to assessment and collection of all taxes accruing thereunder.

1012. Except as otherwise specified, this act will take effect upon its passage.

BUREAU OF MINES EFFECTS SAVING

DESPITE the operation for several years of a system which has reduced waste to a minimum, the United States Bureau of Mines has found it possible to reduce its expenditures for the current fiscal year by \$26,000. The reduction has been effected through revisions of the Bureau's system of carrying on technical investigations. The general program of work will remain unchanged, and no single station will be affected more than any other. For several years the Bureau has transferred equipment from station to station instead of allowing it to remain idle or permitting it to be sold at a loss.

QUARRY ACCIDENTS, 1920

ACCIDENTS at sandstone and blue-stone quarries in 1920 resulted in the injury of 356 men and the death of 2. The quarries employed 4,466 men, representing an increase of 23 percent in the number of workmen. The accident rates for the year were .56 killed and 100.54 injured per thousand employes, as compared with .76 killed and 131.96 injured in 1919.

Accidents at quarries producing cement rock in 1920 resulted in the injury of 2,585 men and the death of 39. The

rate per thousand was 2.75 killed and 182.49 injured, as compared with 2.66 killed and 231.58 injured in 1919. The total number of men employed was 13,251, an increase of 40 percent over 1919.

THINKS SOLOMON IS RUNNING THE BUREAU OF MINES

OUT IN THE PROVINCES," as acute Washingtonians sometimes term those regions in which the votes are cast, people place no limit upon the things which they believe Uncle Sam can accomplish for them. Examples galore of the extreme ability which folks in the suburbs of the nation believe the government to possess in its immediate relations with them are found in letters reaching the various governmental bureaus in Washington.

Two letters recently broke into the comparatively uneventful business existence of a correspondence clerk in the Bureau of Mines to illustrate this very thing. One of these missives bore the postmark of a little western mining town. The letter was written in a draggy, uncertain scrawl, with a name of plainly foreign origin tacked on the end at a rakish angle. The writer sought information, lots of it. Leading off with a simple query as to when the bureau's 1921 reports on everything from silk neckties to onyx cameos would be ready, he stepped into a veritable flood of question marks.

"Could you drop me a line when some expedition starts off to the Cocos Islands or any other place?" he asks with nonchalance.

"What is radium worth a pound?"

"Where are the most birds of paradise found, and how big are their eggs?"

"Can you give me the names of all the foreign and domestic companies handling eyeglasses, telegraph instruments, water gages, periscopes, ore finders, hearing horns, electrical churns, curling irons and aluminum cooking tools?"

And so on and on through three pages.

The other gem par excellence which the mail man brought told of the ambitions of an Italian mushroom grower of New York City. It told such a tale as might as easily have furnished O. Henry with inspiration for one of his wonder yarns of the great metropolis. Not high ambitions were these of the mushroom grower, as they appeared between the lines of the letter. Lower than a fallen instep were they. Down deep in the murky, gloomy depths of deserted mines is where this man's dreams of fortune led his mind. To quote his letter:

"I am a mushroom grower and I am looking for some empty mines in New Jersey in which to plant my mushrooms. Would be much obliged if you would send me a list of same, especially the ones that are good and damp."

With what masses of mushrooms is this fair land of ours due to be swamped if this man's dreams of numberless caverns jammed from side to side and to their roofs with monster bits of tooth-someness ever become realized.

PETROLEUM STATISTICS FOR FIRST HALF OF 1921

GASOLINE production increased 18 percent; kerosene decreased 12 percent; gas and fuel oil increased 22 percent, and lubricating oils increased 12 percent during the first six months of

1921, as compared with the same period of last year. Comparative statistics arranged by the Bureau of Mines are shown below:

		GASOLINE		KEROSENE	
INCOME.		1920	1921	1920	1921
Stocks January 1.....		446,798,431	462,351,837	339,319,690	398,070,923
Production		2,178,281,185	2,588,548,547	1,120,517,007	960,723,092
Imports		21,686,348	14,835,056	.....	.....
Total		2,646,760,964	3,050,760,440	1,459,836,697	1,378,794,015
OUTGO.					
Exports		286,657,962	286,564,512	419,111,094	380,128,998
Shipments to insular possessions		10,270,476	14,861,489	6,317,905	8,988,484
Domestic consumption		1,845,776,925	1,998,689,989	613,064,845	549,619,820
Stocks June 30		504,955,601	750,644,460	421,343,353	485,066,713
Total		2,646,760,964	3,050,760,440	1,459,836,697	1,378,794,015
		GAS AND FUEL		LUBRICATING	
INCOME.		1920	1921	1920	1921
Stocks January 1.....		714,124,455	837,404,414	137,318,934	160,522,477
Production		3,934,351,177	4,784,728,190	501,725,377	440,889,825
Total		4,648,475,632	5,622,132,604	639,044,311	601,412,402
OUTGO.					
Exports		851,537,772	*901,237,743	306,915,840	135,782,285
Shipments to insular possessions		56,317,919	63,474,802	2,350,116	2,795,367
Domestic consumption		3,098,551,578	3,318,755,971	296,565,804	201,951,629
Stocks June 30		641,968,363	1,248,664,088	133,212,551	260,888,121
Total		4,648,475,632	5,622,132,604	639,044,311	601,412,402

Figures on exports and shipments are taken from reports of the Bureau of Foreign and Domestic Commerce.

*Includes fuel or bunker oil for vessels engaged in foreign trade—1918, 2,975,106 barrels; 1919, 5,053,957 barrels; 1920, 19,874,918 barrels; 1921, 13,397,198 barrels.

MAGNESITE OUTPUT GREATER THAN FIRST ESTIMATED

FULL RETURNS from all magnesite producers to the U. S. Geological Survey show a 1920 production of 303,767 short tons, valued at \$2,748,150, an increase of 94 percent in quantity and 120 percent in value over 1919. The accurate production figures are greater than

those used in the Geological Survey's estimate of last January, which placed the output at between 275,000 and 300,000 tons.

Imports during 1920 amounted to 48,332 short tons, or more than three times those of 1919, which aggregated 15,852 short tons.

Detailed figures of American production are shown in the following tables:

CRUDE MAGNESITE PRODUCED AND SOLD OR TREATED IN THE UNITED STATES IN 1919-20					
State and county		1919		1920	
		Quantity (short tons)	Value	Quantity (short tons)	Value
California:					
Fresno, Riverside, San Benito.....		2,876	\$28,986	.....	.....
Fresno .....		.....	.....	708	\$6,850
Napa, San Benito, Sonoma .....		.....	.....	16,608	218,750
Napa		10,112	86,762	.....	.....
Santa Clara		10,912	128,924	26,400	389,950
Stanislaus		4,057	40,730	4,063	39,435
Tulare		22,063	219,581	34,003	428,277
.....		50,020	504,973	81,782	1,088,262
Washington: Stevens		106,206	743,442	221,985	1,664,888
.....		156,226	1,248,415	303,767	2,748,150

CRUDE MAGNESITE PRODUCED AND SOLD OR TREATED IN THE UNITED STATES IN 1913-1920					
Year		Quantity (short tons)	Value	Year	
1913		9,632	\$77,066	1917	316,838
1914		11,293	124,223	1918	231,605
1915		30,499	274,491	1919	156,226
1916		154,974	1,393,693	1920	303,767
.....		.....	.....	.....	2,748,150

ZINC, FIRST HALF OF 1921

PRODUCTION of zinc during the first half of the current year was less than half of that of the corresponding period of last year. Reports from all smelters which have been in operation, tabulated by the Geological Survey, show that the production from domestic ore during the first half of the year was 100,781 short tons, and from foreign ore 1,744 tons, a total of 102,525 tons. Production during the first half of last year amounted to 258,108 tons, and during the last half to 205,269 tons. Stocks on hand at smelters and at warehouses on June 30 aggregated 94,747 tons, having increased from 71,037 tons at the end of 1920 and from 29,892 tons on June 30 last year.

Apparent consumption during the first six months of 1921 was 83,965 tons as compared with 147,783 tons in the last half of 1920 and 175,268 in the first half.

In addition to the zinc produced from ore, 11,950 tons were redistilled from ashes, skimmings and drosses. This gives a total production of 114,475 tons, consisting of 13,358 tons of high-grade, 1,106 of intermediate, 17,466 tons of select and brass special, and 82,545 tons of prime western.

Electrolytic zinc amounted to 4,617 tons as compared with 27,591 tons in the last half of 1920 and 24,035 in the first half.

The number of retorts in operation on June 30, 1921, was 36,000 as compared with 56,000 at the end of 1920 and 95,000 on June 30, 1920.

The Geological Survey in its zinc report includes the following statement: "The demoralization of the zinc industry during the half-year with imports of 7,405 tons, exports of 2,255 tons and apparent consumption of 83,965 tons, is strikingly shown by comparison with the two periods of 1919 and the first half of 1920, when imports were nothing, exports from 70,000 to 90,000 tons, and consumption from 160,000 to 175,000 tons."

MINING CONGRESS PROCEEDINGS

PRINTED proceedings of the 1920 convention of the American Mining Congress held in December were received early in August and mailed to members. Delay in publication was occasioned by the printers' strike, which was especially serious in Baltimore. As a result, the Baltimore printing houses have gone on the open-shop basis.

ALASKA LIGNITE—The reserves of lignite in the Nenana region, Alaska, are estimated by the United States Geological Survey to be nearly 10,000,000,000 tons, which exceeds by nearly 3,000,000,000 tons the estimate made a few years ago, on the information then available, of the total quantity of lignite coal in the territory. The new estimates which are very moderate, indicate that the quantity of coal available in the Nenana coal field is greater than that in all the other surveyed fields of the territory.



PROSPERITY RETURN SEEN IN LARGER BILLS AFFECTING MINING INDUSTRY BEFORE CONGRESS COMMITTEES

PROGRESS IN LEGISLATION of interest to the mining industry since our last issue has been in committee. The House Ways and Means Committee reported out, and the House passed, the tariff bill which is now before the Senate Finance Committee.

The bill for revision of our Federal tax laws has been reported from the House Ways and Means Committee and is reviewed in this issue of the Journal.

The Senate Finance Committee, which is considering the tariff bill, has not yet reached the metal schedule; however, under the chemical schedule both magnesite and manganese have been slightly discussed by those interests opposing a duty on these metals. The committee has received more than 250 applications for hearings, and it is feared that the hearings will be so lengthened as to defer the passage of the permanent tariff bill until late in the fall.

Both houses of Congress have been largely interested in the discussion pertaining to the Farm Loan Bill, and with the exception of the War Materials Relief Bill and the Annual Assessment Bill, together with a bill calling for the investigation of the Wholesale Coal Dealers Association, the mining industry has not been considered on the floor of either house.

Senator Kenyon of Iowa, on August 10, reported from the Agricultural Committee his resolution which provides for an investigation of the Wholesale Coal Dealers' Association.

The War Minerals Relief Bill was reported from Committee by Chairman Rhodes early in August. It is understood that he has failed to secure a special rule for the consideration of this bill by the House and this may mean that the measure will have to await its consideration upon call on the calendar. It is feared that the recess to be taken by Congress during the month of September will further delay the consideration of this important measure.

The passage of the annual assessment bill, which changes the date of doing as-

essment work from the fiscal year to the calendar year, is another piece of legislation which has been enacted during the month.

The tax bill passed the House on August 20. The mining industry is to be congratulated upon the fact that this bill in no way interferes with the present valuable incorporation in the 1918 law of the depletion and discovery clauses.

The Senate has passed a bill authorizing the President to consolidate the offices of register and receiver of land offices into one.

Representative Rhodes, Chairman of the House Committee on Mines and Mining, has introduced a bill providing for investigation by the Bureau of Mines of non-metallic minerals and chemicals produced from mineral sources.

Senator Harris of Georgia has introduced a bill amending the Clayton Act, which bill is aimed at the oil trade. It prohibits any corporation or association producing or refining petroleum or by-products from selling these products within the United States at a different price than that at which the same grade or quality is sold by any other corporation or association when the stockholders of such corporation own or control 25 percent or more of the stock of such other corporation.

As usual, the coal industry was not forgotten. The Frelinghuysen Coal Stabilization Bill came up for consideration on the floor of the Senate but was passed over on the motion of Senator Wadsworth of New York. No debate or opposition was connected with the action.

Congress adjourned on August 24 and will not reconvene until the first of October. This will give the Senate Finance Committee ample time in which to consider the tariff bill and put them in position to immediately take up the tax bill after October first.

The following bills of interest to the mining industry have been introduced since our last issue:

NON-METALLIC MINERALS

H. R. 8126. Introduced by Mr. RHODES; referred to the Committee on Mines and Mining. The bill authorizes the United States Bureau of Mines to investigate and conduct inquiries and scientific investigations in the United States and its territories concerning the mining treatment, and utilization of non-metallic minerals, such as sulphur, phosphate rock, feldspar, potash, mica, graphite, talc, barytes, limestone, etc., with the main object of elimination of waste both in their production and utilization. It further provides that investigations shall be conducted for the purpose of aiding in the efficient production of the non-metallic and other mineral raw materials for the chemical industry, and to investigate and obtain fundamental data needed for the efficient production of chemical products from mineral sources.

BLUE SKY

H. R. 7868. Introduced by Mr. VOLSTEAD; referred to the Committee on Judiciary. This bill authorizes every Federal Reserve bank to appoint on its board of directors a committee to be known as a securities committee, whose duty it shall be to keep themselves informed concerning securities sold or offered for sale. Each committee shall consist of not less than five nor more than fifteen members, one of whom shall be the chairman of the Federal Reserve bank of the district. Whenever it shall appear to any member of this committee that in the selling of any securities involving the use of the mails any person is employing any device to defraud or obtain money by means of false pretense, it shall make a full report thereof to the Attorney General, who, if he shall consider it to be in the public interest, may require such persons to file with him a statement in writing under oath as to all facts and circumstances. He may also require such other data as he may deem relevant and may make special and independent investigations. The committee is under penalty of \$1,000 fine or imprisonment not exceeding one year or both for any officer or employee who shall divulge in any manner the name of any person or any witnesses examined for information. The Act expressly pro-

PETROLEUM STATISTICS FOR FIRST HALF OF 1921

GASOLINE production increased 18 percent; kerosene decreased 12 percent; gas and fuel oil increased 22 percent, and lubricating oils increased 12 percent during the first six months of

1921, as compared with the same period of last year. Comparative statistics arranged by the Bureau of Mines are shown below:

INCOME.	GASOLINE		KEROSENE	
	1920	1921	1920	1921
Stocks January 1.....	446,793,431	462,381,837	339,319,690	393,070,923
Production	2,178,281,185	2,583,543,547	1,120,517,007	980,723,092
Imports	21,686,348	14,835,056	.....	.....
Total	2,646,760,964	3,050,760,440	1,459,836,697	1,373,794,015

vides that it shall not interfere with any state law to regulate the sale of securities within such state.

WAR MINERALS

H. R. 7765. Introduced by MR. RAKER; referred to the Committee on Mines and Mining. This bill amends section V of the Act to provide relief in cases of contracts connected with the prosecution of the war by adding the following: Provided, that all claimants who, in response to any personal, written or published request, demand, solicitation, or appeal from any of the Government agencies mentioned in said Act, in good faith expended money in producing or preparing to produce any of the ores or minerals named therein and have filed or mailed their claims within the time and in the manner prescribed by said Act, if the evidence already filed in support of said claims clearly shows them to be based upon action taken in response to such request, demand, etc., shall be reimbursed such net losses as they may be found to have incurred and are in justice and equity entitled to from the appropriation in said Act; and provided further, that the Secretary of the Interior is authorized to review and reconsider for an award claims in the settlement of which arithmetical errors have been made, and all claims wherein decisions have been determined by rulings contrary to provisions of this amendment, and to ascertain, as a matter of fact, if such claims are raised upon a request, and to ascertain if such claims are based upon a request, etc., as provided by this amendment, and that the unexpended balance of the appropriation carried in the Act be continued available for the purposes set forth above until all such claims shall be fully settled or disposed of.

COAL

H. R. 7948. Introduced by MR. SUTHERLAND; referred to the Committee on Public Lands. This bill provided for the right of agricultural entries on coal lands in Alaska and is similar to all other bills which have been introduced during the session providing for such entry. The bill provides that the coal, oil, or gas deposits reserved shall be subject to disposal by the United States in accordance with the provisions of the laws applicable to such deposits in Alaska.

OIL

H. R. 7950. Introduced by MR. JACOBWAY; referred to the Committee on Mines and Mining. The bill appropriates the sum of \$15,000 to be expended by the Secretary of Interior through the Bureau of Mines for investigations regarding the drilling and production of oil and natural gas in the State of Arkansas with a view to the prevention of waste and economic development of these resources.

INDIAN RESERVATION

H. R. 8010. Introduced by MR. RIDDICK; referred to the Committee on Indian Affairs. The bill provides for the leasing for mining purposes of unallotted lands on the Fort Peck Reservation, Montana. A similar bill was introduced by Senator Walsh, S. 2312.

GOVERNMENT INVESTIGATIONS

H. R. 8085. Introduced by MR. BUCHANAN; referred to the Committee on Banking and Currency. The bill creates a commission to be known as the Commission of Foreign Credits and provides that upon written request of any domestic corporation, association, etc., proposing to sell the products of any essential industry in this country to any foreign Government, association, firm, etc., it shall be the duty of the commission to make diligent inquiry into the financial condition of such foreign purchase and all securities offered as a basis for credit and if found to be such that the credit may be prudently extended, shall certify that fact to the Federal Reserve Board and thereupon issue negotiable notes, maturing within one year from the date thereof, which notes shall become eligible as collateral with the regional reserve banks of the United States. The bill appropriates the sum of \$50,000 and the Commission of Foreign Credits herein created shall have the power to prescribe rules and regulations.

TARIFF

H. R. 7456. Introduced by MR. SPENCER; referred to the Committee on Finance. This is an amendment to the Fordney Tariff Bill and provided for a tariff on barytes ore, crude or unmanufactured, one-half of 1 cent a pound; ground or otherwise manufactured, three-fourths of 1 cent per pound; precipitated barium sulphate or blanc fixe, 1 cent per pound.

ZINC, FIRST HALF OF 1921

PRODUCTION of zinc during the first half of the current year was less than half of that of the corresponding period of last year. Reports from all smelters which have been in operation, tabulated by the Geological Survey, show that the production from domestic ore during the first half of the year was 100,781 short tons, and from foreign ore 1,744 tons, a total of 102,525 tons. Production during the first half of last year amounted to 258,108 tons, and during the last half to 205,269 tons. Stocks on hand at smelters and at warehouses on June 30 aggregated 94,747 tons, having increased from 71,037 tons at the end of 1920 and from 29,892 tons on

REVENUE

H. R. 7885. Introduced by MR. APPEBY; referred to the Committee on Ways and Means. Amending section 210 by striking out all of that section and substituting the following: that, in lieu of the taxes imposed by subdivision (a) of section 1 of the Revenue Act of 1916 and by section 1 of the Revenue Act of 1917, there shall be levied, collected, and paid for each taxable year upon the gross income of every individual a normal tax at the following rate for the calendar year of 1921, and for each calendar year thereafter, 1 percent of the amount of the gross income in excess of the credits provided in section 216. Section 211 is amended to provide for the basing of all rates on gross income, and striking out all of the rates enumerated after 52 percent, this rate to read: 52 percent of the amount by which the gross income exceeds \$100,000. This bill further strikes out the following sections and paragraphs:

Section 214 (deductions) of part 2 (individuals).

Title II (income tax).

Title III (war-profits and excess-profits tax).

Section 630 of Title VI (tax on beverages).

Paragraph V, section 900, Title IX (excise taxes).

H. R. 8245. Introduced by MR. FORDNEY; referred to the Committee on Ways and Means. This bill provided for the reduction and equalization of taxation and amends and simplifies the Revenue Act of 1918. This bill is reviewed completely in another part of the issue.

COMPUTING OIL ROYALTIES.—

The United States Bureau of Mines has issued a pamphlet entitled "Tables for Computing Oil Royalties Under the Leasing Act of February 25, 1920," by R. C. Patterson and D. W. Moran. The tables have been compiled with a view to avoiding the long and tedious computation which would otherwise be required in arriving at royalty figures in connection with the operation of oil producing leases on the public lands of the United States. Copies of this pamphlet may be obtained by addressing the American Mining Congress, Washington, D. C.



PROSPERITY RETURN SEEN IN LARGER RAILROAD EARNINGS

By C. H. FARRELL

THE GENERAL SITUATION in the railroad world begins to show signs of renewed prosperity, and in order to see what encouragement there is we perhaps had better review the various elements that go to make up the success of our carriers. First of all:

EARNINGS for the month of June and for the month of July, so far as the reports are available, are showing marked increases over the previous month. In May the carriers had a net operating income in excess of that for April, and in June May was surpassed with a sufficient amount to produce an annual rate of return on the full valuation of the property as fixed by the Interstate Commerce Commission for rate-making purposes of 3.1 percent. There has been no general compilation of results for July yet, but early reports indicate that this month will exceed June. As a matter of fact July is the first month in which we should get a real indication of the wage reductions and the numerous economies which are being put into effect by the carriers.

OPERATING EXPENSES show a decided decline in June under the month of May, and compared with May and June of last year the reduction is very large. In fact, the operating ratio of the carriers, which means the number of cents out of every dollar which must be spent before any income can be reached, is dropping close to 85 percent, while a year ago it was in the vicinity of 95 percent. This figure was obtained before July 1, when the wage reductions went into effect, and it stands to reason that the carriers must soon be able to get the benefit of the things for which they have been fighting ever since the return of their lines to private management. This should lead to reductions in:

RATES. There is probably nothing in sight at the present time which would warrant a prediction that there will be any general decrease in freight rates, but one can at least be hopeful that the present rate structure will earn for the carriers that which the law says they

are entitled to and that such reductions and readjustments can be made from time to time as can iron out the gross inequalities now existing as to many commodities and make possible a rate structure which will move the traffic. The carriers are going ahead in many instances either voluntarily or in co-operation with the Interstate Commerce Commission making reductions such as those recently made on grain, and the trend of public opinion as felt by the commission is indicated in its recent opinion suggesting that the carriers make reductions in the rates on live stock in western territory down to 80 percent of the present rates. In this particular instance the commission does not find existing rates to be unreasonable, but it does feel that that there should, nevertheless, be reductions and makes such a suggestion to the carriers. The evidence in this case and the arguments before the commission on behalf of the shippers were all to the effect that the live stock industry could not bear up under the existing structure and must have relief. The attorneys asked the commission to look at the situation as an economic one and did not attempt to show any unreasonableness of the rates from a transportation standpoint. If the logic used in this decision be followed by the commission and by the carriers it should mean that many maladjustments now existing and many scales of rates which are ruinous to the various industries are about to be ironed out and something approaching normal condition restored in the rate world, even though there be no general reduction.

Another factor of immense importance to the railroads, and to numerous industries and the general public as well, is the proposed refunding of railroad indebtedness to the government. In only a few instances final settlements have been made with the carriers for use of their property during federal control, but because not only is the government indebted to the carriers but the carriers are in turn also indebted to the govern-

ment, and as there are some questions which make an immediate audit and settlement of all claims impossible nothing has been done in the belief that when any settlement is made such settlement should be final. The carriers today are indebted to numerous industries throughout the country from which they have obtained their fuel and supplies, and they always give as a reason for non-payment of bills, such as their coal bill, which is very large, that the government has not yet made the necessary settlement with them and that they are consequently out of funds. The President, realizing to what extent this situation affected not only the carriers but also numerous industries and the public as well, recommended to Congress that immediate settlement of all bills against the government which could be determined be made and that the claims arising out of "inefficiency of labor" be side-tracked for further consideration on their merits at a later date. He held, further, that it would not be proper to require the carriers in their present financial state to pay immediately to the government the sums which they owe for capital expenditures made and paid for by the government during federal control. He proposed that the carriers be allowed to fund over a period of years all of this indebtedness, which it is estimated amounts to about \$700,000,000. This would leave the government free to pay the carriers where claims were not contested, and it is proposed to market through the War Finance Corporation the railroad securities now held by the government for the purpose of obtaining the funds which are to be turned over to the carriers. This scheme has met with quite general approval and it is expected that Congress will enact the necessary legislation in the near future, although present recess plans and some opposition may make it necessary to hold over until this fall the passage of the laws required. It seems that the carriers should not be required to pay for the capital expenditures which the gov-

ernment made at a time when they are financially crippled, but over a period of years, inasmuch as they are paying the government interest and would have paid for these expenditures little by little if they had made them themselves. As to the settlement of the claims against the government which are just, there is no reason why immediate payment should not be made, and inasmuch as the funds for such payment are coming from railroad securities the taxpayer should not object to this plan. When it is realized that the greater part of this amount will go to the railroads only long enough for them to disburse it among the coal, steel and numerous other industries to whom they owe money, it is plainly seen that the action will not only benefit the carriers but will also be of material assistance to numerous industries and to the people themselves, inasmuch as it will mean the resumption of operation of many plants and the reemployment of many men both by the carriers and the industries.

TONNAGE continues to be a disappointing element because, while the figures show some increases from week to week, they do not compare favorably with similar figures for 1920 and 1919 except in grain and grain products. That commodity is enjoying the largest movement in its history, in spite of the fact that present rates are said to be prohibitive and are before the commission in an attempt to get them revised downward. There is a strong feeling among many people that the carriers cannot hope for an increased tonnage until they have allowed rates to get down much below present levels, and there is always the undercurrent that just ahead of us is a great business revival which will be participated in by all the minute it is once started. Such a revival of course would produce a much larger tonnage, and if the economies of the carriers continue to show as good results it should mean a fair return for them upon a smaller rate basis.

LEGISLATION, as far as the railroads are concerned, does not hold out any promise for immediate relief except as to the funding bill. This bill, which has been referred to above, has been before the Senate Committee on Interstate Commerce as well as a similar committee of the House, and may be reported out and passed in the near future unless a recess is taken. If so, such a law cannot be enacted until late fall, although it is believed by some to be as important as either the tax or tariff program. The general inquiry which the Senate committee conducted for a time cannot be productive of any great results for many months, inasmuch as it was never continued after once being suspended and did not at any time produce any evidence which proved anything except the facts already known as to the general situation. There will be, however, as long as Congress is in session, continued pressure for repeal of the guaranty section of the Transportation Act, which is one requiring the commission to allow

carriers a net return upon a fair valuation for rate-making purposes as near as may be to 5½ percent, with an additional ½ percent added at the discretion of the commission. Next in importance to this proposed repeal is an amendment to the present section under which the commission has, in numerous instances, taken jurisdiction of intrastate rates over the objections and protests of the state commissions. The section giving the commission this authority is perhaps not as important as we are sometimes led to believe, inasmuch as it simply means that one body shall regulate where interstate traffic is involved instead of having a number try to handle locally a situation which is in reality not local. Nevertheless, the state commissions desire this amendment and they are not without strong support in Congress and elsewhere. There are numerous other bills before Congress affecting the railroads, but probably none which will make any great difference in the general situation.

PRACTICAL MINING TOPICS WILL BE DISCUSSED

AT A MEETING of men actively in charge of mining operations to be held in Salt Lake City during the first week in October, it is proposed to make the meeting in effect a metal mining institute. Subjects likely to be discussed include signalling from moving cages, sectional stopping and electrical installation, and general discussions will be held of metal mining methods, safety measures and kindred topics.

The following committees have been appointed to arrange for the meeting:

Program committee—Forest Mathez, Silver King Coalition Mines Co., Park City, chairman; E. A. Hamilton, U. S. Mines, Bingham, vice-chairman; T. P. Billings, Bingham Mines Co., 404 Dooly Bldg., Salt Lake; E. F. Birch, Knight Investment Co., Silver City; Carl A. Allen, State Industrial Commission, Salt Lake; A. J. May, Tintic Standard Mining Co., Dividend.

Arrangements committee — A. S. Wither, Utah Consolidated Mining Co., Bingham, chairman; Wm. Owens, Eagle & Blue Bell Mining Co., Eureka, vice-chairman; N. A. Dunyon, Ontario Silver Mining Co., Salt Lake; O. N. Friendly, Judge Mining & Smelting Co., Park City; J. D. Schilling, Jr., Utah Copper Co., Bingham; A. G. Mackenzie, 214 Boston Building, Salt Lake.

All of those whose names appear on the committees are mine superintendents with the exception of A. G. Mackenzie, who is secretary of the Utah Chapter of the American Mining Congress, and Carl A. Allen, who is the head of the state mine inspection department. Mr. Allen and Mr. Mackenzie have been placed on the committees for purposes of general consultation and to handle the office and field work of the committees.

UTAH SETS NEW RECORD IN SHAFT SINKING

ANOTHER WORLD'S RECORD fell before the skill of Utah workmen when, on August 15, the miners of the Walter Fitch, Jr., Company of Eureka, completed 427½ feet of a vertical three-compartment shaft on the Water Lily property of the Chief Consolidated Mining Company near Eureka. The firm of Walter Fitch, Jr., Incorporated, is a contracting organization headed by Walter Fitch, Jr., a son of Walter Fitch, who is president of the Chief Consolidated Mining Company of Eureka and vice governor of the Utah Chapter of the American Mining Congress.

The record made by the Utah workmen exceeds by 117½ feet the best previous effort made by miners and was completed in thirty-one consecutive days by three shifts of men. The best previous record was made by the Crown Mines, Ltd., at Johannesburg, South Africa, with a distance of 310 feet. In 1916 the Walter Fitch, Jr., Company made a record of 261 feet at Eureka.

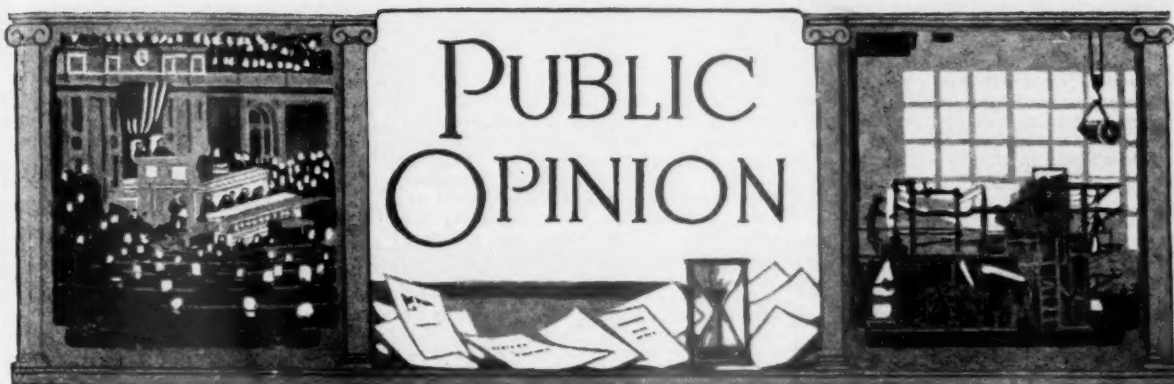
The crew which established the new record is composed almost entirely of American miners. They operated continuously and lost only thirteen hours in repairs and power failures during the entire period of thirty-one days. They are not yet satisfied, but are now going out to beat their own record.

CARNEGIE TECH INVESTIGATES COAL PROBLEMS

WORK ON THE PROBLEMS, the "constitution of coal" and "acid resisting equipment for use in coal mines," is being done at the Carnegie Institute of Technology under a co-operative agreement with the United States Bureau of Mines. Research upon the constitution of coal will consist of the study of the Freeport coal bed with a view to utilization of the bone and cannell coal constituents, and will be done by A. W. Voorhees, who investigated flotation problems last year while a research fellow at the Idaho School of Mines. The problem of acid resisting equipment is being handled by George M. Enos, formerly analytical assistant at the experiment station of the South Dakota School of Mines.

MINING FELLOWSHIPS OFFERED

THE UNIVERSITY OF ALABAMA, School of Mines, offers five fellowships in mining and metallurgical research work, in co-operation with the United States Bureau of Mines, for the scholastic year 1921-22. The fellowships, valued at \$540 each, have been established for the purpose of undertaking the solution of the problems being studied by the United States Bureau of Mines which are of special importance to Alabama and other southern states.



DR. CHARLES AUBREY EATON, former head of the National Service Department of the Emergency Fleet Corporation, in an address before the New Jersey Manufacturers' Association had some interesting comments to make upon the open versus the closed shop. In part he said:

"This is the land of opportunity for the individual. I am opposed to the closed shop first on economical grounds because it gives industry to the weakest and poorest man, which is rotten economics. I am opposed to it on moral grounds because it permits a class of persons to relegate to themselves rights which they cannot exercise under the American constitution or under the moral law, as I recognize it, but mostly I am opposed to it on American grounds because our constitution guarantees to every individual life, liberty and pursuit of happiness, and whenever a private organization, be it composed of capitalists or laborers keeps to itself the right to say this or that man shall not work and shall not work there, then it establishes itself as a power greater than the constitution and government of the United States and either it or the government has to go.

"If you are going to have open shop, first of all you have got to recognize that the labor union is just as nearly part of the forward movement as is the Manufacturers' Association. I want to see open shop in our industries, in our transportation, in our religion, but if you have that you have got to pay the price, and the price is, first, that the employer shall himself become the leader and champion of the men whom he employs.

"You cannot have the open shop on any other basis because this world is divided into led and leaders. The working men, forty million of them in this country are like you and me; they have got to have a leader. If you as his employer wont lead him he goes outside and gets a professional leader, and the only way the professional leader can keep his job is to prove to the man you are his oppressor and he must redeem the oppressed working men from you, the oppressor, who pays his wages.

"The ordinary workingman thinks his employer is just rolling in wealth. The fact is, you and I know, that big and little employers alike at this present moment are only about one comfortable lobe ahead of the sheriff, and there is no telling how long that condition will last.

"You can't take the place of leadership of your men except you are willing to pay the price, and the price is that the employer shall be absolutely white and clean and straight clear through and through. It takes the biggest and best men in the world to lead his employees, but once they have confidence in you, once they know that you will be square with them, that when they need heaven you will give it to them and when they need hell you will give them that, and you will take your own medicine without a wry face; once they believe you are that kind of a man, you have got them.

"I want to see the labor union go on not as a fighting machine but something like the United States Chamber of Commerce, representing the interests of the business men of the country. I want to see it continue as the mouthpiece of labor in this country expressing the aspirations of the working people in legislation, in education and in a thousand and one ways, but the time has come in our great house cleaning when we have got to shift these things through to the bottom, and one of the things is we have got to have one law for everybody.

"You ask for a different kind of court for labor questions, there ought not to be a different kind of court for labor questions, there ought to be one law for the rich man and one law for the poor man, one law for the working man and one law for the man who employs him, one law for the Democrat and one law for the Republican, one law for the foreign-born and one law for the home-born, and every institution in this country ought to be brought up to that law and made to keep it and held responsible to it, and I hold it is nothing short of anarchy to enact a law in our Congress year after year in which we specifically exclude certain interests namely, the labor unions and the farmers, from the law that governs you business men in combination in restraint of trade. It is wrong.

"I would incorporate you under the law and I would make you obey the law. I would incorporate the working man under the law and I would make him obey the law. I wouldn't permit him by force to terrorize anybody and I wouldn't permit you to do it; that I believe is the essence of Americanism.

"The strike is the most wasteful and wicked institution devised by man. We have gone into a study of that problem covering a period of thirty years, and it has been demonstrated by a careful analysis of government facts that the strikes of this nation have cost the

nation directly and indirectly close to five million dollars every twelve months for the last thirty years."

WHILE THE METALS SCHEDULE of the Fordney Tariff Bill was not subject to debate on the floor of the House, CONGRESSMAN TIMBERLAKE of Colorado made an interesting speech in behalf of this schedule from which we quote as follows:

"In the building of a tariff platform on which the industries of our country are to stand for many years to come it is absolutely essential that no gaps be left in this platform through which any worthy industries may fall to bankruptcy and extinction.

"Numerous objections have been raised to these proposed tariffs on so-called raw materials. What do these raw materials include? They include the products of our farms and our ranges, of our mines and our smelters; they include those industries which employ labor in greatest quantity; they include those industries which are the bone and sinew of our Nation.

"Repeated statements have been made on the floor of the House as to the alleged increased cost to consumers because of the proposed tariff on raw materials. Let us take some actual cases in point and see what happened under free trade. Under free trade we have built up no ferromanganese industry. When the need for ferromanganese came on us suddenly during the war we had no domestic source of supply. The price of ferromanganese went to \$400 and \$500 a ton. We had no protection for potash. When our supplies from Germany were cut off the price of potash rose from 25 cents per unit to \$5.50 per unit. The same thing has happened with regard to quicksilver, which rose to \$127 a flask in 1918.

"Another objection which has been raised against these tariffs is that these minerals being valuable materials for war purposes, should be left in the ground as potential reserves. The best statement which I can quote to you is that made by Guy P. Riddell, formerly metallurgical engineer for the United States Tariff Commission. He said that as between a totally undeveloped natural resource in time of emergency and a totally depleted one there was no choice. We saw the most utter fiasco in an effort to stimulate the production of

these war-time minerals by an advertising propaganda, on which the government has never made good, during the last emergency. Do you think that one of those war mineral operators could be got to go forward and produce these materials again in time of emergency?

"Private enterprise unprotected will never go into the operation of these necessary mineral industries in war or peace times either. If an emergency arose the government itself would have to open up these industries if they were closed down. By the time the necessary legislation could be enacted and these industries financed and opened up by the government, we could be thoroughly overridden by our foes.

"A correct adjustment of our tariff problem will go a long way toward settling our transportation issue.

"Is there any gentleman in this Congress who is so bold as to tell me that the only way which we can achieve a readjustment which will bring about plenty and peace, and the smooth-running industrial activity in this country is to sit idly by and live on our fat until the nations which are indebted to us can catch up with us economically? Must we sit in idleness while others do the work of the world? Must our American workman be forced into idleness to give labor to European workmen to pay off their governmental debt to the United States? We have a large export business, it is true. We want to keep all of it. We want more if we can have it in conjunction with sound internal, industrial, and financial business conditions. But what, after all, is export business? It is the disposal of surplus merchandise produced in going American industrial organizations. You can not have surplus production from bankrupt domestic organizations which are fighting with each other and with foreign competitors for a share of their home market. The political, industrial, and economic history of this country will show this conclusively, that we have learned from bitter experience that it takes twenty years of protection to prepare this country economically to stand four years of free trade."

MANUFACTURERS generally have felt very keenly the business depression. The first avenue of retrenchment which has occurred to them has been a curtailment of their advertising campaign. Almost without exception manufacturers reduced their advertising expenditures from one-third to one-half. Whether this is a wise procedure is a question which has been much considered by economists and by the press. One of the most interesting editorials we have seen upon this subject is that published by the *San Francisco Examiner*, which in part says:

"We will refrain from emphasizing advertising's direct services to the public in lowering prices of goods, maintaining quality among products and promoting correct, convenience, valuable buyer-knowledge. The great and outstanding fact for laymen and advertising men to grasp now is that advertising by its own demonstration is a valuable and vital factor in the promotion of the whole na-

tional good. No man is outside its sphere of its good. It embraces all and affects all.

"The laymen accustomed to look doubtfully or indifferently upon advertising as an instrumentality solely for the benefit of the fortunate few, now suddenly sees it is a power intimately and inseparably linked with himself and his own interests. Advertising has kept alive hope. It has shamed and shattered pessimism. It has encouraged industry, fostered the gradual recovery of the buying impulse, and at last created a firm market. Now it will go forward to assist in the development of good business and in the restoration of satisfactory political and economic conditions throughout the country."

WITH DIRECTOR DAWES of the Budget Bureau receiving a great deal of publicity in his saving campaign even greater emphasis has been brought to bear upon the "reckless national expenditures." Undoubtedly there has been much waste in bureaucratic control and investigation. W. J. WOLLMAN & Co. has issued the following pertinent statement:

"A curb should be placed on the costly bureaucratic regulation or control of private enterprise. Such devices seldom result in benefit to any but the salaried officials. Congress should abandon its plan to place the coal mining and packing industries under federal supervision. Competition will settle the problems involved much more quickly and efficiently than red tape. Private enterprise has been working its way forward since the dawn of civilization. It has solved its own problems; it has taken its profits and swallowed its losses.

"The progress of the world shows that in the end the balance has been written in black ink. Whenever the government has stepped in, whether in the administration of the postal service, the operation of railroads, or any other undertaking, the story of the result has been told in red ink. Taxation has made up the deficit.

"For the next quarter of a century the leading issue before the country will be the question of tariff or fiat money or imperialism. It will be the cost of government getting the government out of extra-governmental activities and the control of national expenditures. There is no time like the present for the recognition of this fact."

PORTLAND CEMENT.—Production of Portland cement for the first seven months of 1921 amounted to 97 percent of the quantity manufactured in the corresponding months of 1920 and shipments to more than 96 percent of those for the same period of last year. Stocks on July 31 were more than 1,470,000 barrels larger than on December 31 of last year and above the average for July of the last preceding five years. Production of unground cement during the seven months' period amounted to 53,000,000 barrels. The July output exceeded 9,000,000 barrels.

JOHN L. COCHRANE SUCCUMBS

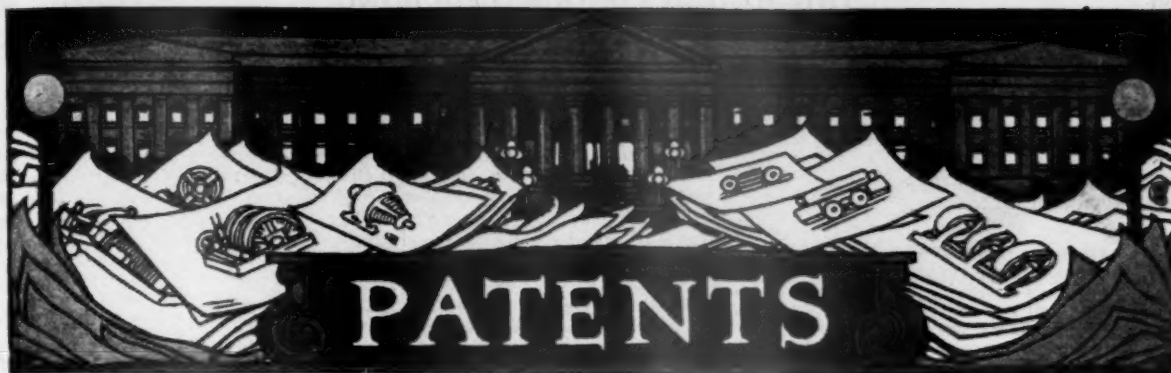
FOLLOWING a protracted illness which began with a paralytic stroke last January, John L. Cochrane, statistician of the United States Bureau of Mines, died in Cleveland on the night of August 3-4.

Mr. Cochrane had been in the federal service at Washington fourteen years, having been with the technologic branch of the Geological Survey before he became connected with the Bureau of Mines. Since the creation of the Bureau in 1910 he had been in charge of its publication work. He contributed to the press a great number of articles on mine safety and mineral conservation topics, and was co-author of the Geological Survey bulletin on "The fire tax and waste of structural materials in the United States."

Before entering the federal service, Mr. Cochrane had become one of the best known newspaper men in the United States. He filled editorial positions on the *Cleveland Leader* and the *Cincinnati Commercial-Tribune* and later became night city editor of the *Washington Post*. But his long service at the Bureau of Mines was characterized by something more than marked journalistic ability, namely, by a deep appreciation of the problems of the mining industry and a friendly feeling for both the operator and his employees. He took a personal interest in his work, and his object in writing for the press was always to advance the work of the Bureau of Mines or to help the mining industry rather than to secure publicity merely. His funeral, which was held in Cleveland August 5, was attended by friends from Washington, including the secretary of the American Mining Congress and the assistant director of the Bureau of Mines.

Born in Dundee, Scotland, Mr. Cochrane came to the United States at the age of eight years, and was forty-nine when he died. He is survived by his widow, Mrs. Emily W. Cochrane, and two sisters, the latter residing in Cleveland.

Stuart B. Stone, of Kentucky, has been appointed chief of the Division of Information and Publication of the Bureau of Mines, succeeding the late John L. Cochrane. Mr. Stone was Mr. Cochrane's assistant for several years. Before going to Washington he had been engaged in newspaper work in Kentucky, Oklahoma and Kansas. He has been an extensive contributor to magazines and is the author of two humorous books, "The Nonsensical U. S. A." and "The Kingdom of Why."



CONDUCTED BY JOHN BOYLE, JR.

1,378,920—*R. S. Towne*, New York, N. Y., and *F. B. Flinn* of Orange, N. J., May 24, 1921, assigned to Pneumatic Process Flotation Co.

PROCESS AND APPARATUS FOR SEPARATING ORES in which the pulp is delivered at or near the vertical axis of a relatively widely extended pulp column, permitting the solid content particles to commence their descent on lines approximately close to the vertical axis, and causing them to move outward as they descend, so that they shall be subjected to repeated actions of the air globules as the latter ascend.

1,379,095—*A. L. Genter*, Salt Lake City, Utah, May 24, 1921, assigned one-half to General Engineering Co.

CONTINUOUS THICKENING PROCESS employing preferably an open tank wherein a series of suction filter elements are submerged. The construction of apparatus is such that the overflow rim common to decantation tank thickeners is eliminated and the filtrate withdrawn from the elements by a vacuum means on the one hand and a counter current cleansing action is applied to the interior of said elements in such a manner that during the process of filtration, different series of these elements are being cleansed while the balance are filtering in the same tank.

1,379,427—*W. Whaley*, Knoxville, Tenn., May 24, 1921.

LOADING MACHINE comprising a magazine or receptacle applied at the rear of the conveying mechanism to receive the material discharged from the conveying mechanism, the said receptacle being at such height as to permit bringing a vehicle or other portable receptacle or carrying means below the first-mentioned receptacle, in order that the magazine receptacle may uninterruptedly receive material from the elevating mechanism and vehicles may periodically be placed below the magazine receptacle and the material discharged into the carrying vehicle.

1,379,428—*W. Whaley*, Knoxville, Tenn., May 24, 1921.

SHOVELING MACHINE comprising a conveyor and a shovel mechanism applied to the forward end of the conveyor to take up material and deliver it to the conveyor, the forward end of the conveyor being at the floor or

ground level, and the rear end of the conveyor being elevated to facilitate discharge of material into a car or elsewhere.

1,379,514—*K. F. Begley*, White Star, Ky., May 24, 1921.

MINE TAR TAG HOLDER.

1,379,860—*D. F. Lepley*, Connellsville, Pa., May 31, 1921.

MINE SKIP.

1,379,870—*D. F. Lepley*, Connellsville, Pa., May 31, 1921.

GRAVITY CAR CONTROL FOR MINE HOISTS.

1,380,650—*J. Hebbard*, Brokenhill, New South Wales, Australia, June 7, 1921, assigned to Minerals Separation North American Corporation.

FLOTATION APPARATUS in which the aeration and agitation are effected by a hydraulic action of a gravity flow of the ore pulp through successive separating vessels; comprising a level regulating over-flow for each vessel disposed at a lower level than its concentrates overflow, and each level regulating overflow (except the last) discharging directly into the next separating vessel in the series.

1,380,665—*F. J. Lyster*, Broken Hill, New South Wales, Australia, June 7, 1921, assigned to Minerals Separation North American Corporation.

FLOTATION APPARATUS comprising in combination a separating box having a residues outflow at the bottom and an overflow at the top, a vessel mounted therein with its lower end immersed in the liquid and having an outlet at the bottom into the separating box and an overflow launder at the top, and a feed box having a discharge pipe at the bottom forming a pulp-operated air injector delivering into the said vessel.

1,380,871—*W. G. Swart, F. A. Jordan, E. W. Davis* and *T. P. Counselman*, Duluth, Minn., June 7, 1921.

MAGNETIC SEPARATOR comprising a rotatable drum and a series of electro-magnets distributed in arcuate form within and adjacent the periphery of said drum and co-acting therewith to attract magnetically sus-

ceptible particles carried thereto, some of said magnets being of relatively strong excitation and other magnets being of relatively weak excitation to produce substantially distinct areas of variable magnetic potency and means for changing the location of said areas.

1,381,204—*R. G. Lawry*, Chicago, Ill., June 14, 1921, assigned to Roberts & Schaefer Co.

COMBINED SCREEN AND PICKING TABLE having at both ends relatively wide conveying surfaces and intermediate such wide surfaces having a plurality of separate narrow conveying surfaces arranged in parallel, there being sufficient space between the narrow surfaces to permit an operator to stand and work between them.

1,381,862—*E. Deister*, Fort Wayne, Ind., June 14, 1921.

ORE CONCENTRATOR.

1,377,189—*B. H. Dosenbach*, Butte, Mont., May 10, 1921.

FLOTATION PROCESS comprising introducing into the pulp a gaseous modifying agent tending to cause flotation of all of said constituents and simultaneously introducing a gaseous substance which has a deterrent effect upon the flotation of some of the metalliferous constituents of the ore but not upon others.

1,377,842—*N. D. Levin*, Columbus, Ohio., May 10, 1921, assigned to Jeffrey Mfg. Co.

MINING APPARATUS relating to slack shoveling devices adapted to remove the cuttings produced by the cutter bits of mining machines of the well known short wall type. In such machines the cuttings produced by the cutting mechanism are drawn rearwardly by the movement of the cutting bits and discharged within the main frame of the mining machine as the bits pass around the driven sprocket wheel. The accumulation of cuttings in proximity to the sprocket often tends to choke the machine and cause the bits to carry slack forward along the upper side of the cutter arm to be dropped eirshe kerf, thereby interfering with the purtni breaking down of the material. As nthe-b fore practised these cuttings havegsoter removed by the use of a shovel in the front of the miner's helper. It is the especial object of this invention to provide a mechanically actuated shoveling device for the removal of these cuttings which may be

conveniently attached to the mining machine when it is in position for operation or may be separated therefrom for transportation from one working place to the next.

1,378,362—*N. D. Levin*, Columbus, Ohio, May 17, 1921, assigned to the Jeffrey Mfg. Co.

MINING APPARATUS. In coal mines, break throughs, or connecting passages, are formed at regular intervals in the walls between adjacent rooms and between parallel adjacent entries, through which is maintained the circulation of air necessary to the ventilation of the mine. The formation of these break throughs necessitates the occasional operation of the cutting mechanism along the side walls of the rooms and entries in lines parallel to their length. By the earlier machines the cutting of such break throughs could only be accomplished by entirely disconnecting the cutting mechanism from the truck and laboriously moving it by means of bars, cables, etc., into the desired cutting position, and after the completion of the cutting operation, moving it back in like manner to a position from which it might be reloaded upon the truck. It is the especial object of this invention to provide an apparatus in which the cutting mechanism can be carried by the truck during transportation and in which it is movable horizontally therefrom, without breaking its connection therewith to rest entirely upon the floor and to be moved horizontally under the guidance and control of the truck to cut a horizontal kerf from one side to the other of a relatively wide room or to cut a horizontal kerf longitudinally of the side wall of a relatively narrow room.

1,378,521—*W. Brimley and W. Collins*, Benton, Ill., May 17, 1921.

COAL WASHER. Screens are mounted in the upper portion of the tank, and are adapted to support the material to be washed, and to provide for free upward travel of the water therethrough in the pulsations caused by the action of the reciprocating plunger hung below the screens. The screens are rigidly secured in position and are preferably arranged at a slight angle inclining downwardly from the ends toward the vertical center of the jig. A suitable wooden pendulum plunger is pivotally supported on a shaft and is adapted to reciprocate to produce a series of pulsations.

1,378,562—*R. E. Sayre*, Pittsburgh, Pa., May 17, 1921, assigned to Metals Recovery Co.

FLOTATION PROCESS comprising adding to the pulp a small amount of aldehyde condensation product.

1,383,321—*F. E. Marcey*, Salt Lake City, Utah, July 5, 1921.

FLOTATION APPARATUS of the type employing porous or canvas bottom. The objections inherent in such a bottom are overcome by having not only a clear opening for the passage of the air through, but being provided also with means for preventing clogging of the opening. The air plate is provided with openings and reciprocating pins passing therethrough, and spaced from the walls to form passage ways for the air, and cleaning rings on the pins normally positioned outside the opening, the diameter of the rings being sufficient to rub the walls of the openings and thereby clean the walls with a movement of the pins.

MONROE GAS FIELD'S RESOURCES HARDLY TOUCHED

CONCLUDING an investigation requested by Governor John M. Parker, the U. S. Bureau of Mines has made a report on the Monroe gas field, embracing the parishes of Ouachita, Morehouse and Union in northern Louisiana. The report describes existing conditions and estimates the amount of gas in the sands. These estimates, based upon measurements at eight ounces per square inch above atmospheric pressure, indicate the presence of 4,750,000,000,000 cubic feet of gas.

The report states that approximately 9,000,000,000 cubic feet of gas have already been withdrawn from the reservoir, but that still there has been no noticeable decline in the rock pressure, which still measures about 1,050 pounds to the square inch. An area of 212 square miles with an average sand thickness of at least 50 feet is regarded as proven by wells already drilled.

H. W. Bell and R. A. Cattell, petroleum engineers of the Bureau of Mines, prepared the report. The report also discusses wells which have gotten beyond control and methods for repairing them, as well as protecting the field against unnecessary waste in the future. The carbon black industry, and the possibility of using the gas for domestic purposes in large cities, as well as the possibility of generating electricity, are also discussed.

The state of Louisiana helped bear the expense of the investigation.

TRAP-ROCK ACCIDENTS—Trap-rock quarries of the United States employed 4,951 men in 1920, an increase of 221 or 4½ percent as compared to the previous year, according to Bureau of Mines calculations. Employees averaged 232 working days. Ten workmen were killed and 799 injured in accidents. These figures indicate a fatality rate of 2.61 and an injury rate of 208.89 per thousand men employed, based upon a standard year of 300 days, as against corresponding rates of 2.56 killed and 186.47 injured a year ago. New Jersey led all other states with 1,090 men employed, followed by Massachusetts with 885, Pennsylvania 752, Maryland 727, New York 631, and Connecticut 450. Nonfatal injuries were distributed as follows: Pennsylvania 194, Maryland 146, Massachusetts 121, New Jersey 114, Connecticut 92, and New York 49.

Col. Alfred H. Brooks, expert on Alaskan mineral problems, sailed for Seward August 12. M. G. Gulley spent the first two weeks of August visiting producing fields and examining geologic structures at Elk Basin, Wyoming, and Cody, Greybull, Thermopolis, Lander, Kemmerer and Rawlins, after which he returned to Casper. L. C. Mosburg went to Eldorado, Ark., early in August to finish work in the Eldorado oil field begun by W. W. Rubey in May.

INDUSTRIAL NOTES

The Automatic Reclosing Circuit Breaker Company of Columbus, Ohio, has engaged the services of Ralph R. Rugheimer, who will be responsible for its activities in the coal fields of Eastern Kentucky, Virginia and Southeastern Ohio.

B. G. Dann, who for the last four years has been connected with the engineering department of the Truscon Steel Company in Youngstown, Ohio, and New York City, has resigned to accept a position as manager of the New York office, 30 Church Street, of the Hendrick Mfg. Co., makers of perforated metal screens, elevator buckets, general sheet and light structural work, also light and heavy steel plate construction. Mr. Dann is a graduate of the Engineering Department of Lafayette College. B. G. Shotton is the Manager of the Pittsburgh office of this company, located in Union Bank building.

A recent bulletin of the Jeffrey Mfg. Co., calls special attention to the very latest feature of the straitflo fan, that of roller bearings. These bearings are self-aligning, mounted on heavy cast iron pedestals insuring continuous operation at the highest speeds without vibration.

Both bearings are mounted on the outside of the fan wheel, enabling an attendant to examine same without going into the air course. This is a very desirable feature where the fan is installed at a shaft mine, boosting purposes or even drift mines, as it eliminates doors, by-passes, and at the same time permits a support for the shaft on each side of the pulley.

MINES TO RECEIVE CREDIT FOR WATER SHIPMENTS

WATER CARRIERS have been instructed by the Interstate Commerce Commission to hereafter prepare freight commodity statistics similar to those now prepared by the railroads. These statistics include the segregated totals of the products of the mines, the forests, agriculture, animals, and manufactures and miscellaneous. The orders are retroactive and take effect as of the beginning of the current calendar year.

CLAY PRODUCTION.—The value of clay products marketed in the United States in 1920, according to the U. S. Geological Survey, aggregated \$364,220,000, the highest amount on record. These figures show an increase of \$103,430,000 over 1919, of approximately \$144,000,000 over 1918, and of nearly \$200,000,000 over 1910. Most of the increase was due to the increased cost of production, which reached its peak last year, although the quantity of many clay products was greater last year than the year preceding.



The age-old dream of the alchemist is realized because of Linde

THROUGH countless centuries man dreamed of transmuting the baser metals into gold. Patiently, laboriously, often consecrating their very lives to the work, the Alchemists of old toiled on toward their elusive goal.

As late as 1873 James Price, the last of the Alchemists, sought death by his own hand rather than acknowledge the failure of his experiments.

Linde Engineers of to-day have made this dream of by-gone ages come true.

By producing uniformly pure oxygen in industrial volume, they have made it possible for oxy-acetylene welders and cutters to reclaim thousands of tons of metal machinery annually—turning base metal into gold—a saving in money far in excess of any vision of wealth dreamed of by ancient philosophers.

And Linde does more than supply oxygen of absolutely uniform purity. Thanks to a chain of twenty-nine plants and forty-six warehouses it delivers Linde Oxygen when and where it is wanted in any volume.

LINDE AIR PRODUCTS COMPANY

Carbide and Carbon Building, 30 East 42nd Street, New York

Balfour Building, San Francisco

THE LARGEST PRODUCER OF OXYGEN IN THE WORLD

BUYER'S DIRECTORY

ACID, SULPHURIC

Irrington Smelting & Refining Works, Irvington, N. J.

AERIAL TRAMWAYS

American Steel & Wire Co., Chicago and New York.

AIR COMPRESSORS

Allis-Chalmers Mfg. Co., Milwaukee, Wis.
General Electric Co., Schenectady, N. Y.
Worthington Pump & Machinery Corp., 115 Broadway, New York City.

AMALGAMATORS

Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Mine Equipment & Supply Co., Denver, Colo.

ARMATURES

General Electric Co., Schenectady, N. Y.
Westinghouse Elec. & Mfg. Co., East Pittsburgh, Pa.

ASBESTOS PRODUCTS

Mikesell Bros. Co., 156 North La Salle St., Chicago, Ill.

ASSAYERS

Walter E. Burlingame, 1736 Lawrence St., Denver, Colo.
Indiana Laboratories Co., Hammond, Ind.
Ledoux & Co., Inc., 99 John St., New York.
Pennsylvania Smelting Co., Pittsburgh, Pa.
Union Assay Office, Inc., Box 1446, Salt Lake City, Utah.

AUTOMATIC CAR CAGERS

Connellsville Mfg. & Mine Supply Co., Connellsville, Pa.

AUTOMATIC COAL SKIP

Roberts & Schaefer Co., McCormick Bldg., Chicago, Ill.

AUTOMATIC (Mine Doors, Truck and Electric Switches)

American Mine Door Co., Canton, Ohio.

BALL MILLS

Mine Equipment & Supply Co., Denver, Colo.
Worthington Pump & Machinery Corp., 115 Broadway, New York City.

BATTERY-CHARGING EQUIPMENT

General Electric Co., Schenectady, N. Y.

BELTING (Conveyor, Elevator, Transmission)

Jeffrey Mfg. Co., 958 N. Fourth Avenue, Columbus, Ohio.

BELTING, SILENT CHAIN Morse Chain Co., Ithaca, N. Y.

Jeffrey Mfg. Co., Columbus, Ohio.

BIT SHARPENERS

Denver Rock Drill Mfg. Co., Denver, Colo.

BLASTING SUPPLIES

Atlas Powder Company, Wilmington, Del.
du Pont Powder Co., The E. I., Wilmington, Del.
Hercules Powder Co., Wilmington, Del.
National Fuse & Powder Co., Denver, Colo.

BLOWERS

General Electric Co., Schenectady, N. Y.

BOILERS

Allis-Chalmers Mfg. Co., Milwaukee, Wis. (feed pump).
Mine Equipment & Supply Co., Denver, Colo.

BOXES, JOURNAL

J. R. Fleming & Son Co., Inc., Scranton, Penna.

BRATTICE CLOTH

Mikesell Brothers Co., 156 N. La Salle Street, Chicago, Ill.

BREAKERS (Construction and Machinery)

Jeffrey Mfg. Co., Columbus, Ohio.
Vulcan Iron Works, Wilkes-Barre, Pa.
Westinghouse Elec. & Mfg. Co., East Pittsburgh, Pa.
Wilmot Engineering Co., Hazleton, Pa.

BRIQUETTING MACH.

Jeffrey Mfg. Co., Columbus, Ohio.

BUCKETS (Elevator)

Hendrick Manufacturing Company, Carbondale, Penna.
Jeffrey Mfg. Co., Columbus, Ohio.
Stephens-Adamson Mfg. Co., Aurora, Ill.

CABLES (Connectors and Guides)

American Mine Door Co., Canton, Ohio.

CABLEWAYS

Jeffrey Mfg. Co., Columbus, Ohio.
Lidgerwood Mfg. Co., 96 Liberty St., New York City.

CAGES

Car-Dumper & Equipment Co., Chicago, Ill.
Connellsville Mfg. & Mine Supply Co., Connellsville, Pa.
Holmes & Bros., Robert, Inc., Danville, Ill.
Lidgerwood Mfg. Co., 96 Liberty St., New York City.

CAGE (Safety Appliances)

Connellsville Mfg. & Mine Supply Co., Connellsville, Pa.

CAR CONTROL AND CAGE EQUIPMENT

Car-Dumper & Equipment Co., Chicago, Ill.

CAR DUMPS

Car-Dumper & Equipment Co., Chicago, Ill.

CAR AND CAR WHEELS

Hockensmith Mine Car Co., Penn Station, Pa.
United Iron Works Co., Kansas City, Mo.
Watt Mining Car Wheel Co., Barnesville, Ohio.

CAR-HAULS

Car-Dumper & Equipment Co., Chicago, Ill.

CASTINGS

Jeffrey Mfg. Co., 958 N. Fourth Street, Columbus, Ohio.
The Lunkenheimer Co., Cincinnati, Ohio.
Mine Equipment & Supply Co., Denver, Colo.

CHAINS

Jeffrey Mfg. Co., Columbus, Ohio.
Morse Chain Co., Ithaca, N. Y.
Stephens-Adamson Mfg. Co., Aurora, Ill.

CHEMICALS

The Barrett Company, 90 West St., New York City.
Roessler & Hasselacher Chemical Co., 709-717 Sixth Avenue, New York.

CHEMISTS

Walter E. Burlingame, 1736 Lawrence St., Denver, Colo.
Hunt, Robt., & Co., Insurance Exchange, Chicago, Ill.
Indiana Laboratories Co., Hammond, Ind.
Ledoux & Co., A. R., Inc., 99 John St., New York City.
Union Assay Office, Inc., Box 1446, Salt Lake City, Utah.

CIRCUIT BREAKERS

Automatic Reclosing Circuit Breaker Co., The, Columbus, O.
General Electric Co., Schenectady, N. Y.

CLAMPS (Trolley)

Ohio Brass Co., Mansfield, Ohio.

CLUTCHES

Connellsville Mfg. & Mine Supply Co., Connellsville, Pa.

COAL COMPANIES

Clinchfield Coal Corp., Dante, Va.
Lehigh Coal & Navigation Co., Philadelphia, Pa.
Stonega Coal & Coke Co., Philadelphia, Pa.
Thorne, Neale & Co., Philadelphia, Pa.
Wholesale Coal Co., Pittsburgh, Pa.

COAL CRUSHERS

Connellsville Mfg. & Mine Supply Co., Connellsville, Pa.
Jeffrey Mfg. Co., Columbus, O.
Stephens-Adamson Mfg. Co., Aurora, Ill.

COAL CUTTERS

Goodman Mfg. Co., Chicago, Ill.
Jeffrey Mfg. Co., Columbus, Ohio.

COAL DRYING PLANTS

Roberts & Schaefer Co., McCormick Bldg., Chicago, Ill.

COAL HANDLING MACHINERY

Jeffrey Mfg. Co., Columbus, Ohio.
Lidgerwood Mfg. Co., 96 Liberty St., New York City.
Roberts & Schaefer Co., McCormick Bldg., Chicago, Ill.
Stephens-Adamson Mfg. Co., Aurora, Ill.
Watt Mining Car Wheel Co., Barnesville, Ohio.

COAL LOADING MACHINES Myers-Whaley Company, Knoxville, Tenn.

COAL MINING MACHINERY

Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Goodman Mfg. Co., Chicago, Ill.
Jeffrey Mfg. Co., Columbus, Ohio.
Roberts & Schaefer Co., McCormick Bldg., Chicago, Ill.

COAL MINE POWER PLANTS

Roberts & Schaefer Co., McCormick Bldg., Chicago, Ill.

COAL MINING PLANTS

Roberts & Schaefer Co., McCormick Bldg., Chicago, Ill.

COAL WASHING MACHINERY

Stephens-Adamson Mfg. Co., Aurora, Ill.

COAL WASHING PLANTS

Roberts & Schaefer Co., McCormick Bldg., Chicago, Ill.

COCKS (Locomotive, Cylinder and Gauge)

The Lunkenheimer Co., Cincinnati, Ohio.
Nicholson, W. H., & Co., Barre, Pa.

COILS (Choke)

General Electric Co., Schenectady, N. Y.

COMPRESSORS, AIR

General Electric Co., Schenectady, N. Y.

CONCENTRATORS (Magnetic)

Worthington Pump & Machinery Corp., 115 Broadway, New York City.

CONCENTRATORS (Table)

Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Mine Equipment & Supply Co., Denver, Colo.
Worthington Pump & Machinery Corp., 115 Broadway, New York City.

CONCRETE REINFORCEMENT

American Steel & Wire Co., Chicago and New York.

CONDENSERS

Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Westinghouse Elec. & Mfg. Co., East Pittsburgh, Pa.
Worthington Pump & Machinery Corp., 115 Broadway, New York City.

CONSULTING ENGINEERS

Roberts & Schaefer Co., McCormick Bldg., Chicago, Ill.
Shourds-Stoner Co., Inc., Terre Haute, Ind.

CONTRACTORS

Roberts & Schaefer Co., McCormick Bldg., Chicago, Ill.

CONTROLLERS

General Electric Co., Schenectady, N. Y.
Goodman Manufacturing Co., Halsted St. and 48th Place, Chicago, Ill.
Westinghouse Elec. & Mfg. Co., East Pittsburgh, Pa.

CONVEYORS, BELT

Jeffrey Mfg. Co., 958 N. Fourth St., Columbus, Ohio.
Stephens-Adamson Mfg. Co., Aurora, Ill.

CONVEYORS, CHAIN FLIGHT

Jeffrey Mfg. Co., 958 N. Fourth St., Columbus, Ohio.
Wilmot Engineering Co., Hazleton, Pa.
Stephens-Adamson Mfg. Co., Aurora, Ill.

Why the Fort Wayne?

THE adaptability of the Fort Wayne Electric Rock Drill is a constant source of enthusiastic comment.

The Fort Wayne may be operated on either direct or alternating current. Thus it is ready for business wherever electric current is available. You can hook it onto the trolley within a few minutes after it is unloaded.

As one rock man said, "We can stick it up, attach a line to the trolley, another to the rail, and go right ahead." And the way those rotary hammers tear into the rock is a joy to see. No power wasted—just pure energy properly directed—1700 blows a minute—each blow 150 pounds to the square inch.

Moving entails no expense or burden—one man can do it if necessary. "For many jobs," says a mine superintendent who knows, "we don't even have to take the Wayne off the truck."

There are many other reasons why you cannot afford to get along without the Fort Wayne Electric Rock Drill if you have any amount of rock work to do.



Let us tell you all about this great Drill and its work—our literature will prove interesting and instructive, and we'll gladly send it for the asking.

ELECTRICAL HEADQUARTERS

Union Electric Company, PITTSBURGH, PA.

S E R V I C E

At Washington

WASHINGTON has acquired a new significance since the unprecedented burdens of Government finance have staggered industry with the cost of war and its aftermath.

MAINTENANCE of the United States now demands five billion dollars per year—collected by the Bureau of Internal Revenue.

COLLECTION of five billion dollars, largely self-assessed, inevitably means uncertainty and economic stress in the process, under any tax law. The present code provokes genuine confusion that can only be ameliorated by genuine co-operation between the taxpayer and the Treasury Department.

The American Mining Congress, acting as an unofficial intermediary, is striving to be of aid both to you and the Revenue Bureau in solving the peculiar problems that inherently attach to the mineral industry.

The American Mining Congress, an organization of service, representing the basic industry of forty-two states, speaks

FOR YOU

Write

THE AMERICAN MINING CONGRESS

MUNSEY BUILDING

WASHINGTON, D. C.

CONVEYORS, COAL

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 Stephens-Adamson Mfg. Co., Aurora, Ill.

CONVEYORS AND ELEVATORS

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 Stephens-Adamson Mfg. Co., Aurora, Ill.

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Jeffrey Mfg. Co., 958 N. Fourth St., Columbus, Ohio.
 Stephens-Adamson Mfg. Co., Aurora, Ill.

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Hendrick Manufacturing Company, Carbondale, Pa.

CONVEYORS, SCREW

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 Stephens-Adamson Mfg. Co., Aurora, Ill.

COPPER ELECTROLYTIC

United Metals Selling Co., 42 Broadway, New York City.

COPPER WIRE

Anacosta Copper Mining Co., 111 W. Washington St., Chicago, Ill.

CORE DRILLING

H. R. Ameling Prospecting Co., St. Louis, Mo.
 Hoffman Bros., Punxsutawney, Pa.

COUPLINGS

Nicholson, W. H., & Co., Wilkes-Barre, Pa.

CRUSHERS

Allis-Chalmers Mfg. Co., Milwaukee, Wis.
 Jeffrey Mfg. Co., 958 N. Fourth St., Columbus, Ohio.
 Mine Equipment & Supply Co., Denver, Colo.
 Stephens-Adamson Mfg. Co., Aurora, Ill.
 United Iron Works Co., Kansas City, Mo.
 Worthington Pump & Machinery Corp., 115 Broadway, New York City.

CRUSHERS, COAL

Connellsville Mfg. & Mine Supply Co., Connellsville, Pa.
 Jeffrey Mfg. Co., 958 N. Fourth St., Columbus, Ohio.
 Stephens-Adamson Mfg. Co., Aurora, Ill.
 United Iron Works Co., Kansas City, Mo.

CRUSHING PLANTS, COKE

Jeffrey Mfg. Co., 958 N. Fourth St., Columbus, Ohio.

CYANIDE

American Cyanamid Co., New York, N. Y.
 Rosser and Hasselacher Chemical Company, 709 Sixth Avenue, New York City.

DERRICKS AND DERRICK FITTINGS

James H. Channon Mfg. Co., 227 W. Erie St., Chicago, Ill.

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 Mine Equipment & Supply Co., Denver, Colo.
 Roberts & Schaefer Co., McCormick Bldg., Chicago, Ill.

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DOORS, AUTOMATIC MINE

American Mine Door Co., Canton, Ohio.

DRAG LINES

Denver Rock Drill Mfg. Co., Denver, Colo.

DREDGES, GOLD AND TIN

New York Engineering Co., 2 Rector St., New York City.

DRIFTERS, DRILL

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 Ingersoll-Rand Co., New York City.

DRILLS (Blast Hole)

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 Ingersoll-Rand Co., New York City.

DRILLS, CORE

Hoffman Bros., Punxsutawney, Pa.
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General Electric Co., Schenectady, N. Y.
 Ingersoll-Rand Co., New York City.
 Jeffrey Mfg. Co., 958 N. Fourth St., Columbus, Ohio.
 Union Electric Co., Pittsburgh, Pa.

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DRILLS, PNEUMATIC

Denver Rock Drill Mfg. Co., Denver, Colo.
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DRILLS, PROSPECTING

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DRILLS, ROCK

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 General Electric Co., Schenectady, N. Y.
 Ingersoll-Rand Co., New York City.
 Union Electric Co., Pittsburgh, Pa.

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Denver Rock Drill Mfg. Co., Denver, Colo.

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Morse Chain Co., Ithaca, N. Y.

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Allis-Chalmers Mfg. Co., Milwaukee, Wis.

DUMPERS, ROTARY

Car-Dumper & Equipment Co., Chicago, Ill.

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Connellsville Mfg. & Mine Supply Co., Connellsville, Pa.

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 Goodman Mfg. Co., Forty-eighth Place and Halsted St., Chicago, Ill.
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 General Electric Co., Schenectady, N. Y.
 Westinghouse Elec. & Mfg. Co., East Pittsburgh, Pa.

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 Goodman Mfg. Co., Forty-eighth Place and Halsted St., Chicago, Ill.
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 Ohio Brass Co., Mansfield, Ohio.
 Westinghouse Elec. & Mfg. Co., East Pittsburgh, Pa.

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 Ohio Brass Co., Mansfield, Ohio.

ELECTRICAL SUPPLIES

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 Union Electric Co., Pittsburgh, Pa.
 Westinghouse Elec. & Mfg. Co., East Pittsburgh, Pa.

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Jeffrey Mfg. Co., 958 N. Fourth St., Columbus, Ohio.
 Stephens-Adamson Mfg. Co., Aurora, Ill.

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Jeffrey Mfg. Co., 958 N. Fourth St., Columbus, Ohio.
 Stephens-Adamson Mfg. Co., Aurora, Ill.

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 Stephens-Adamson Mfg. Co., Aurora, Ill.

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 Mine Equipment & Supply Co., Denver, Colo.
 Worthington Pump & Machinery Corp., 115 Broadway, New York City.

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 Hunt, Robert & Co., Insurance Exchange, Chicago, Ill.
 Indiana Laboratories Co., Hammond, Ind.
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 Du Pont Powder Co., Wilmington, Del.
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 General Electric Co., Schenectady, N. Y.
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 Vulcan Iron Works, Wilkes-Barre, Pa.
 Westinghouse Elec. & Mfg. Co., East Pittsburgh, Pa.

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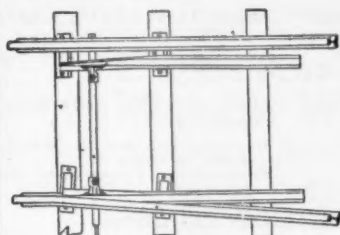
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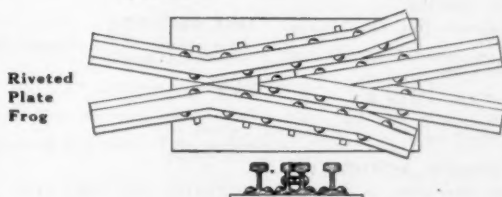


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Mancha Storage Battery Locomotive Co., St. Louis, Mo.
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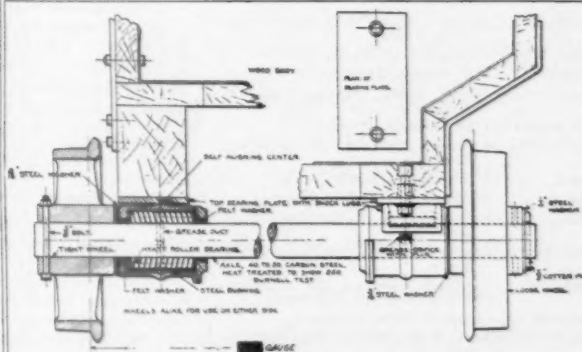
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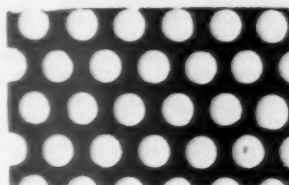
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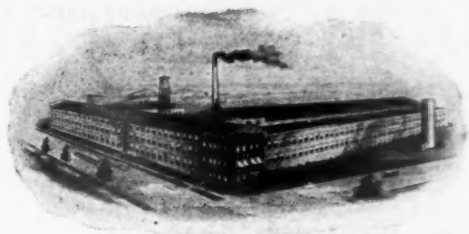
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